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Marasmius Notebook 1

L. R. Hesler

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Marasmius

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MARASMIUS

Key to Species of Southeastern United States

L. R. Hesler

October, 1956

MARASMIUS SPECIES IN SOUTHEASTERN UNITED STATES

4	alachuanus Murrill	13	graminum (Libert) Berk. & Br.
27	albiceps Pk.	39	heliomyces Murrill
37	androsaceus (L.) Fries	29	hemisphaericus Murrill
53	archyropus (Pers.) Fries	88	insititius Fries
12	atropurpureus Murrill	98	leptopus Peck
68	badiceps Peck	41	magnisporus Murrill
23	balansae Spog. (= floridanus)	34	Magnoliae Singer
16	bellipes Morgan	3	minutissimus Peck
80	biformis Pk. (?)	26	minutus Pk.
67	caesius Murrill	4	multivenosus Murrill
28	callicarpellus Murrill	32	nigripes (Schw.) Fries
5	calopus (Pers.) Fries	96	nolaneiformis Murrill
41	candidus Fr.	31	octifolius Murrill
45	candidus var. setulosus Joss. & Smith	79	oligoinsulae Murrill
19	capillaris Morgan	99	olneii Berk. & Curt.
50	castaneicolor Pennington	35	opacus Berk. & Curt.
21	cohaerens (A. & S.) Quel.	10	oreades Fr. = <i>caryophyllus</i> (see Singer)
52	confluens (Fr.) Kummer	49	pallidiceps Murrill
40	decolorans B. & C. (<i>Heliumyces</i>)	65	perforans Fries
20	delectans Morgan	73	peronatus Fr.
94	dichrous Berk. & Curt.	61	praeacutus Ellis
75	domesticus Murrill	1	prasioismus Fr.
9	elongatipes Peck	33	pruinosisipes Murrill
7	epiphyllus Fries	81	pseudimpudicus Murrill
2	epodius Bresadola	17	pulcherripes Peck
94	fagineus Morgan	82	quercuum Murrill
23	floridanus Murrill (= balansae)	36	ramealis (Bull.) Fries
43	foetidus Fr.	51	resinosus (Pk.) Sacc.
25	glabellus Pk.		

Marasmius Species in S.E. United States - 2

18	rotula Fr.	90	No. 8954
72	rubrophyllus Pennington	30	No. 9177
11	scorodoniuss Fr.	15	No. 9645
84	semihirtipes Pk.	8	No. 11789
22	setulosus Murrill	58	No. 13984
6	sicciformis Murrill	40	No. 15787
14	siccus (Schw.) Fr.	48	No. 17472
77	spongiosus Berk. & Curt.	54	No. 17628
46	stenophylloides Murrill	93	No. 18904
89	stenophyllus Mont.	69	No. 19662
62	subalbiceps Murrill	92	No. 20161
74	subarchyropus Murrill	71	No. 20485
64	subgraminis Murrill	54	No. 20486
87	subnigricans Murrill	92	No. 20602
97	subnudus (Ellis) Pk.	78	No. 21071
76	subprasiosmus Murrill	95	No. 21089
47	substenophyllus Murrill	70	No. 21343
66	subsynodicus Murrill	56	No. 21699
100	superabundans Murrill	57	No. 21858
12	tagelicolor Berk.	59	No. 21988
24	testaceiceps Murrill	42	No. 21989
38	thujinus Pk.	86	No. 22138
101	urens Fr.	83	No. 22292
91	velutipes Berk. & Curt.	85	No. 22313
60	vialis Peck	44	No. 22315
*	violae Murrill	55	No. 22375
63	Westii Murrill		

*Not included; type not in condition for study.

SOUTHEASTERN MARASMIUS

Key to Sections

1. Epicutis composed of hymeniform cells (cells variable in shape: cuneate, spathulate, pyriform, clavate, loaf-shaped, barrel-shaped, globose)..... 2
1. Epicutis not hymeniform-cellular..... 3
2. Elements (cells) of the epicutis smooth.....SECTION I: *p. 2*
2. Elements of the epicutis not smooth; the epicutis composed of "broom-cells".....SECTION II: *p. 3*
3. Elements of epicutis diverticulate.....SECTION III: *p. 6*
3. Elements of epicutis hyphoid; hyphae usually appressed, but at times erect or semi-erect. SECTION IV: *p. 7*

MARASMIUS: SECTION I

Key to Species

1. Spores 10-25 μ long..... 2
1. Spores shorter, at times up to 12 μ long..... 3
2. Spores 10-15 μ long; odor of garlic; margin of pileus even..... 1. prasioemus Fr.
2. Spores 19-25 μ long; odor mild; margin of pileus sulcate..... 2. epodius Bres.
3. Spores 3-4 μ long; pileus 0.5-1 mm. broad, white, pubescent..... 3. minutissimus Pk.
3. Spores longer..... 4
4. Odor of anise; lamellae distant, interveined; caespitose.
..... 4. alachuanus Murr.
(= multivenosus Murr.)
4. Odor, if any, not of anise..... 5
5. Odor mild or none..... 6
5. Odor either fragrant or of garlic..... 11
6. Pleurocystidia absent; cheilocystidia diverticulate..... 5. calopus Fr.
6. Pleurocystidia present..... 7
7. Pileus pale vinose; pleurocystidia and cheilocystidia clavate..... 6. sicciformis Murr.
7. Pileus not so..... 8
8. Pileus white, at least at first; stipe 2-5 cm. long..... 9
8. Pileus not white..... 10
9. Pileus 2-10 mm. broad, plicate-rugose..... 7. epiphyllus Fr.
9. Pileus 10-25 mm. broad, striatulate, smooth.... 8. No. 11789
10. Pileus 8-12 mm. broad, buff to tawny; stipe 5-14 cm. long; pleurocystidia and cheilocystidia fusoid-ventricose, often subcapitate, 33-55 x 5-7 μ 9. elongatipes Pk.
10. Pileus 3-5 cm. broad, "orange-cinnamon," pale cream or pale incarnate; stipe 4-5 (8) cm. long; pleurocystidia absent, cheilocystidia cylindric, scattered, 26-34 x 3-5 μ 10. oreades Fr.
11. Odor of garlic; cheilocystidia clavate, 18-35 x 3-5 μ ; stipe structure usual..... 11. scorodonius Fr.
11. Odor fragrant; cheilocystidia, if any, cylindric, 26-34 x 3-5 μ ; stipe cortex loosely organized..... 10. oreades Fr.

MARASMIUS: SECTION II

Key to Subsections

1. Spores reaching a length of 12 μ or more..... 1. Macrospora
 1. Spores 12 μ or less in length..... 2. Microspora

Subsection 1: MacrosporaKey to Species

1. Spores 19-25 μ long..... 2. epodius Bres.
 1. Spores 10-18 μ long..... 2
 2. Lamellae attached to a collarium..... 3
 2. Lamellae without a collarium..... 4
 3. Pileus subvinous, disk dark-purple, margin ^{plicate, not striate} even; pleurocystidia and cheilocystidia present. 12. tageticolor Berk. (= atropurpureus Murr.)
 3. Pileus zinc-orange to ochraceous-buff, fading to light-buff, margin sulcate; pleurocystidia and cheilocystidia absent..... 13. graminum (Libert) Berk. & Br.
 4. Apex of stipe white, elsewhere brownish to black..... 5
 4. Apex of stipe pinkish or red, elsewhere brownish to black; pileus vinous or reddish; spores 10-15 μ long.. 6
 5. Pileus 1-4 cm. broad, burnt-sienna to orange-rufous; lamellae nearly free; stipe 4-10 cm. long..... 14. siccus (Schw.) Fr.
 5. Pileus 1-3 mm. broad, pallid to grayish-ochraceous; lamellae adnate; stipe 1-2 cm. long..... 15. No. 9645
 6. Cheilocystidia clavate, 18-30 x 3-6 μ ; broom-cells of pileus-epicutis sessile; lamellae broad..... 16. bellipes Morgan
 6. Cheilocystidia of two types: (a) fusiform, (b) diverticulate; broom-cells of epicutis stipitate; lamellae narrow..... 17. pulcherripes Pk.

Subsection 2: Microspora

Key to Species

1. Lamellae attached to a collarium; pileus umbilicate, sulcate or plicate..... 2
1. Lamellae without a collarium; pileus not umbilicate, margin variable (even, striate, sulcate)..... 3
2. Pileus ~~white~~ ^{grayish-alutaceous to} spores 6-8 μ long; cheilocystidia saccate with verrucose apex..... 18. rotula Fr.
2. Pileus pinkish-cinnamon; spores 8-10 μ long; cheilocystidia none..... 19. capillaris Morgan
3. Pleurocystidia present (mounts in both water and in Melzer's reagent should be observed)..... 4
3. Pleurocystidia absent..... 10
4. Pleurocystidia naturally colorless in water-mounts, becoming reddish-brown in Melzer's reagent, variable, irregularly fusoid..... 20. delectans Morgan
4. Pleurocystidia not with the above characters..... 5
5. Pleurocystidia naturally brown in water-mounts..... 6
5. Pleurocystidia naturally colorless, not staining in Melzer's reagent..... 7
6. Carpophores caespitose; stipe bases confluent; pileus pinkish-buff, disk sayal-brown, velvety, striatulate (wet); pleurocystidia 48-102 x 9-18 μ 21. cohaerens (A. & S.) Quél.
6. Carpophores merely gregarious; stipe bases not confluent; pileus fulvous, disk darker, finely hispid, even (wet); pleurocystidia 51-76 x 7-8 μ 22. setulosus Murr.
7. Spores 8-12 μ long..... 8
7. Spores 6-8 μ long..... 9
8. Pileus zinc-orange to Kaiser-brown or fulvous, velvety, flesh white; stipe glabrous; spores 8-12 x 2.5-3 μ ; cheilocystidia subcylindric, often capitate..... 23. floridanus Murr.
8. Pileus testaceous, with a bloom, rugose, flesh concolor; stipe pubescent; spores 9-12 x 3-4.5 μ ; cheilocystidia of two types: (a) subfusiform, (b) bottle-shaped with an echinulate apex..... 24. testaceiceps Murr.
9. Pileus 6-15 mm. broad (10-28 mm. in the type), dark-ochraceous, pruinose; pleurocystidia 42-51 x 5-7 μ 25. glabellus Pk.

9. Pileus 1-4 mm. broad, reddish-brown to vinous-red,
glabrous; pleurocystidia 20-28 x 3-4.5 μ .. 26. minutus Pk.
10. Surface elements of stipe composed of broom-cells..... 11
10. Surface elements of stipe without broom-cells..... 12
11. Pileus white, becoming straw-colored; taste farinaceous;
apex of stipe white, elsewhere black.... 27. albiceps Pk.
11. Pileus ochraceous-isabelline; taste mild; apex of stipe
white, elsewhere dark-fulvous.... 28. callicarpellus Murr.
12. Pileus 8-18 mm. broad, white or pale yellow; stipe
reddish brown; cheilocystidia stalked-diverticulate....
..... 5. calopus Fr.
12. Pileus smaller; stipe not reddish-brown; cheilocystidia
none..... 13
13. Pileus pruinose, pale-isabelline, margin even; apex of
stipe white, elsewhere umbrinous; spores 5 x 3 μ
..... 29. hemisphaericus Murr.
13. Pileus glabrous, bay or brown, margin sulcate; stipe
blackish, capillary; spores 6.5-8 μ long..... 14
14. Spores 3 μ broad; lamellae distant; pileus ochraceous-
brown to reddish-brown..... 30. No. 9177
14. Spores 4-5 μ broad; lamellae very distant, 8 in number;
pileus pale-bay..... 31. octifolius Murr.

MARASMIUS: SECTION III

Key to Species

1. Spores stellate-angular, 7-9 μ in diameter; pileus white; epicutis of pileus, pleurocystidia, and cheilocystidia diverticulate.... 32. nigripes (Schw.) Fr.
1. Spores not with the above characters..... 2
2. Spores globose, 3 μ in diameter; pileus 6 mm. broad, isabelline, margin sulcate, epicutis elements composed of nodulose broom-cells; stipe pruinose..... 33. pruinosis Murr.
2. Spores not globose..... 3
3. Surface of pileus bearing hairs which consist of short, vesciculose, brown, spiny cells.... 34. Magnoliae Singer
3. Surface of pileus not as above..... 4
4. Pileus uniformly white, surface rugulose, margin even.... 35. opacus B. & C.
4. Pileus colored, at least on the disk..... 5
5. Pileus white, disk reddish, plane or depressed, margin even, surface rugulose; stipe white; spores 8-10 x 3-3.5 μ 36. ramealis Fr.
5. Pileus, stipe, and spores not as above..... 6
6. Pileus variable, fuscous, often paler with a pinkish tint, at times reddish-brown, tinged purple, margin striate; stipe black, hollow..... 37. androsaceus Fr.
6. Pileus cinereous, tinged lilac; stipe pallid to slightly brownish, solid..... 38. thujinus Pk.

MARASMIUS: SECTION IV

Key to Subsections

1. Spores 10-12 μ or more in length..... 1. Macrospora
 1. Spores 4-10 (12) μ long..... 2. Microspora

Subsection 1: MacrosporaKey to Species

1. Pileus pale bay, margin even; taste mild; pleurocystidia and cheilocystidia none. ~~Spores 10-12 μ long~~ 39. heliomyces Murr.
 1. Pileus white, at times tinged pinkish, margin striate, sulcate, or plicate; taste farinaceous; pleurocystidia and cheilocystidia present..... 2
 2. Stipe differentiated into cortex and rind..... 3
 2. Stipe not clearly differentiated into cortex and rind; pileus pruinose, micaceous, taste farinaceous, becoming acrid; pleurocystidia 80-100 x 7-8 μ , sub-ventricose (a Marasmius?)..... 40. No. 15787 *decoloratus B.C.*
 3. Pileus pruinose, ^{fabercent} apex of stipe white, elsewhere ^{white or} avellaneous ^{to} or brownish; spores 10-16 (19) μ long..... 41. candidus Fr.
 3. ~~Pileus glabrous; stipe white throughout; spores 10-14 μ long..... 42. No. 21989~~

Subsection 2: Microsporae

Key to Species

1. Spores 4-⁷ (8) μ long..... 2
1. Spores 8-10 (12) μ long..... 46
2. Lamellae attached to a collarium..... 3
2. Lamellae lacking a collarium..... 4
3. Odor foetid (like skunk), taste disagreeable; pileus
tawny..... 43. foetidus Fr.
3. Odor and taste mild; pileus white, becoming buff.....
..... 44. No. 22315
4. Both pleurocystidia and cheilocystidia present..... 5
4. Pleurocystidia absent; cheilocystidia present (see No. 4,
below)..... 10
4. Neither pleurocystidia nor cheilocystidia present..... 19
5. Pileus white; pleurocystidia 40 μ or more in length..... 6
5. Pileus pallid, isabelline, brownish, or smoky; pleuro-
cystidia 30 μ or less in length..... 8
6. Pileus depressed-umbilicate, with setulose pilocystidia..
..... 45. candidus var. setulosa Joss. & Sm.
6. Pileus lacking these characters..... 7
7. Pileus convex-umbonate, tomentose, taste mild (?); stipe
tomentose; spores pip-shaped... 46. stenophylloides Murr.
7. Pileus convex, not umbonate, glabrous, taste bitter;
stipe glabrous; spores ellipsoid.....
..... 47. substenophyllus Murr.
8. Pileus smoky-brownish, margin more or less sulcate;
lamellae very distant; trama of pileus aerenchymatous.
..... 48. No. 17472
8. Not with the above characters..... 9
9. Pileus pallid to isabelline, gregarious; stipe 0.5 mm.
in diameter..... 49. pallidiceps Murr.
9. Pileus brown or chestnut, scattered; stipe 1-1.5 mm. in
diameter..... 50. castaneicolor Penn.
10. Pileus 3-10 mm. broad, white; with resinous dots on
stipe and pileus..... 51. resinosus (Pk.) Sacc.
10. Pileus and stipe lacking resinous dots..... 11
11. Cheilocystidia cylindrical, ^{at tip} nodulose..... 12
11. Cheilocystidia not with the above characters..... 13

12. Lamellae free; stipe enlarged at apex..... 52. confluens (Fr.) Kummer
12. Lamellae adnexed; stipe not enlarged at apex..... 53. archyropus Fr.
13. Cheilocystidia diverticulate..... 54. No. 17628
(also No. 20486)
13. Cheilocystidia not diverticulate..... 14
14. Pileus white with a buff disk, margin rugose-striate;
cheilocystidia indistinct..... 55. No. 22375
14. Pileus otherwise colored..... 15
15. Pileus light buff or pinkish buff..... 16
15. Pileus not with the above colors..... 17
16. Pileus light buff; lamellae free; spores 4-4.5 x 2-2.3 μ .
..... 56. No. 21699
16. Pileus pinkish buff; lamellae adnate; spores
6-8 x 2.5-3 μ 57. No. 21858
17. Pileus russet, glabrous but velvety, margin even;
lamellae adnexed, crowded, sinuous-crisped, white
but drying zinc-orange; stipe base clavate, with a
cottony envelop; cheilocystidia clavate,
17-23 x 2-4 μ 58. No. 13984
(near peronatus Fr.)
17. Not with the above characters..... 18
18. Pileus avellaneous, fibrillose, margin striate; lamellae
adnate to a false collarium, subdistant; stipe
avellaneous, equal, pruinose; cheilocystidia pyriform,
15-22 x 6-10 μ 59. No. 21988
18. Pileus "fuscous" to "light-cinnamon drab," glabrous,
striate; lamellae adnate; stipe black, horny;
cheilocystidia, if any, few, fusiform-clavate,
16-22 x 3-5 μ 37. androsaceus Fr.
19. Pileus 10 mm. or less broad..... 20
19. Pileus 10 mm. or more broad..... 33
20. Pileus white, pallid, pinkish, yellowish, pale isabelline,
grayish, or caesius..... 21
20. Pileus reddish, brownish, or grayish-brown..... 30
21. Pileus entirely white..... 22
21. Pileus colored, at least on the disk..... 23
22. Pileus depressed-umbonate; lamellae adnexed.....
..... 35. opacus B. & C.
22. Pileus convex; lamellae decurrent..... 60. vialis Pk.

23. Lamellae close; stipe base swollen, contracted below..... 61. praeacutus Ellis
 23. Lamellae subdistant or distant; stipe not as above..... 24
24. Margin of pileus sulcate..... 25
 24. Margin of pileus even..... 28
25. Pileus convex-umbilicate..... 62. subalbiceps Murr.
 25. Pileus not umbilicate..... 26
26. Pileus hemispheric, 2-3 mm. broad, grayish-drab.....
 54. No. 17628 *Rever*
 (also No. 20486)
 26. Pileus not with the above characters..... 27
27. Pileus rosy-isabelline, 1.5-2 mm. broad; stipe 2 mm.
 long..... 63. Westii Murr.
 27. Pileus white to stramineous, 4-8 mm. broad; stipe
 5-10 mm. long..... 64. subgraminis Murr.
28. Pileus pulverulent or finely tomentose; odor mild or none. 29
 28. Pileus glabrous, rugulose, pallid; odor foetid.....
 65. perforans Fr.
29. Pileus whitish to pale isabelline; stipe white above,
 pallid and tinted rosy below..... 66. subsynodicus Murr.
 29. Pileus caesius or whitish; stipe white above, murinous,
 to blackish below..... 67. caesius Murr.
30. Pileus brown, not tinged red or gray..... 31
 30. Pileus brown, tinged red or gray..... 32
31. Spores 4-6 x 2.5-3 μ ; taste unpleasant..... 68. badiceps Pk.
 31. Spores 7-8 x 3-3.5 μ ; taste mild..... 69. No. 19662
32. Pileus grayish-brown, margin even..... 70. No. 21343
 32. Pileus pale reddish-brown, margin more or less sulcate...
 71. No. 20485
33. Lamellae reddish to reddish-brown or becoming so..... 34
 33. Lamellae not with these colors..... 35
34. Pileus reddish-brown to dark-alutaceous, margin even;
 stipe pruinose, 2-3 cm. long..... 72. rubrophyllus Penn.
 34. Pileus brown with a reddish tint, margin striate; stipe
 yellow-strigose at base, peronate, 5-8 cm. long.....
 73. peronatus Fr.
 (Collybia)
35. Stipe 4 mm. or more in diameter; pileus pallid or
 yellowish, glabrous, even; lamellae very narrow and
 very crowded..... 74. subarchyropus Murr.

35. Stipe 4 mm. or less in diameter; pileus and lamellae
not as above..... 36
36. Stipe enlarged either above or below..... 37
36. Stipe equal..... 40
37. Apex of stipe enlarged; pileus dark-isabelline,
pallescent..... 75. domesticus Murr.
37. Base of stipe enlarged..... 38
38. Odor and taste of garlic; pileus cremeous with a fulvous
tint..... 76. subprasiosmus Murr.
(Collybia?)
38. Odor and taste mild..... 39
39. Pileus pale brown to pale fuscous, margin even; base of
stipe spongy..... 77. spongiosus B. & C.
(Collybia?)
39. Pileus reddish-brown, margin striate; base of stipe not
spongy..... 78. No. 21071
(Collybia?)
40. Lamellae distant..... 41
40. Lamellae subdistant or close..... 43
41. Stipe 4-5 mm. long, glabrous; pileus isabelline to
fulvous..... 79. oligoinsulae Murr.
41. Stipe 2-5 cm. in length..... 42
42. Lamellae joined at the stipe, rather close; stipe
brownish to cinereous..... 80. biformis Pk.
42. Lamellae not joined, distant; stipe black.. 68. badiceps Pk.
43. Pileus isabelline or tinged rosy, margin striate..... 44
43. Pileus reddish-brown or buff..... 45
44. Lamellae adnexed; stipe hollow; pileus isabelline, not
rosy, margin even; taste pleasant to slightly bitter;
spores 5-6.5 μ long..... 81. pseudoimpudicus Murr.
44. Lamellae adnate; stipe solid; pileus isabelline, tinged
rosy, radiate-striate; taste mild; spores 4 μ long....
..... 82. quercuum Murr.
45. Pileus buff..... 83. No. 22292
45. Pileus pale reddish-brown..... 84. semihirtipes Pk.
(Collybia spongiosa?)
46. Both pleurocystidia and cheilocystidia present..... 47
46. Pleurocystidia absent..... 51
47. Pileus brown..... 48
47. Pileus white, pallid, or buff..... 49

48. Pleurocystidia fusoid, 25-37 x 5-6 μ 85. No. 22313
 48. Pleurocystidia clavate, buried, 32-37 x 4-6 μ . 86. No. 22138
 (Collybia?)
49. Pileus and lamellae becoming black on drying; pleurocystidia projecting prominently, ventricose to bottle-shaped, cheilocystidia clavate.....
 87. subnigricans Murr.
49. Not blackening; pleurocystidia buried, awl-shaped to fusoid..... 50
50. Cheilocystidia awl-shaped to fusoid; pileus rather uniformly pallid to buff..... 88. insititius Fr.
50. Cheilocystidia diverticulate; pileus white with a reddish disk..... 36. ramealis Fr.
51. Cheilocystidia present..... 52
 51. Cheilocystidia absent..... 58
52. Cheilocystidia diverticulate..... 89. stenophyllus Mont.
 52. Cheilocystidia not diverticulate..... 53
53. Pileus and stipe purplish; stipe base tapering to a short "root"; cheilocystidia 25-32 x 5-6 μ , clavate...
 90. No. 8954
53. Pileus and stipe not as above..... 54
54. Pileus dull-chestnut to ochraceous-brown, disk paler..... 55
 54. Pileus uniformly reddish-brown to clay-brown..... 56
55. Stipe yellowish-tomentose; cheilocystidia 24-30 x 2.5-3 μ , irregularly cylindric..... 91. velutipes B. & C.
55. Stipe pruinose; cheilocystidia 20-40 x 4-6 μ , cylindric-flexuous..... 92. Nos. 20161 & 20602
 (near velutipes B. & C.)
56. Cheilocystidia cylindric-slender, 40-50 x 2-3 μ ; spores 7.5-9 x 2.7-3.7 μ 93. No. 18904
56. Cheilocystidia 6-11 μ broad, clavate..... 57
57. Cheilocystidia 32-48 x 8-11 μ ; spores 7-10 (11) 94 x 2.5-3.7 μ ; pileus silky..... 94. dichrous B. & C.
 (= fagineus Morgan)
57. Cheilocystidia 22-25 x 6-8 μ ; spores 7-9 x 3-4 μ ; pileus fibrillose..... 95. No. 21089
 (Collybia?)
58. Pileus avellaneous, disk umbrinous; spores 7.5-9 (10) x 4-6 μ 96. nolaneiformis Murr.
58. Pileus brownish or rufous..... 59
58. Pileus white-shining (dry), pale buff (wet). ... 96a. No. 22644

59. Pileus margin even; spores 8-10 x 4-5 μ 97. subnudus (Ellis) Pk.
 59. Pileus margin striate..... 60
60. Stipe glabrous; spores 7.5-9 x 3-4 μ 98. leptopus Pk.
 60. Stipe pruinose, pulverulent, pubescent, or tomentose..... 61
61. Stipe pulverulent-tomentose, white; lamellae attached to
 a collar which becomes free..... 99. olnei B. & C.
 61. Stipe pruinose to pubescent, brown or isabelline;
 lamellae lacking a collar..... 62
62. Pileus isabelline or fulvous; stipe isabelline,
 pruinose..... 100. superabundans Murr.
 62. Pileus brown to cinnamon-brown; stipe pallid-brown,
 pubescent..... 101. urens Fr.

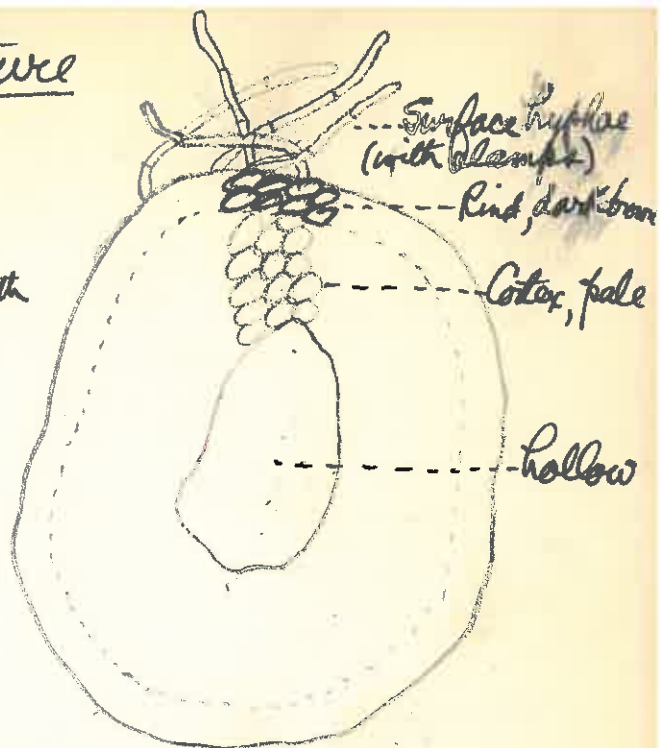
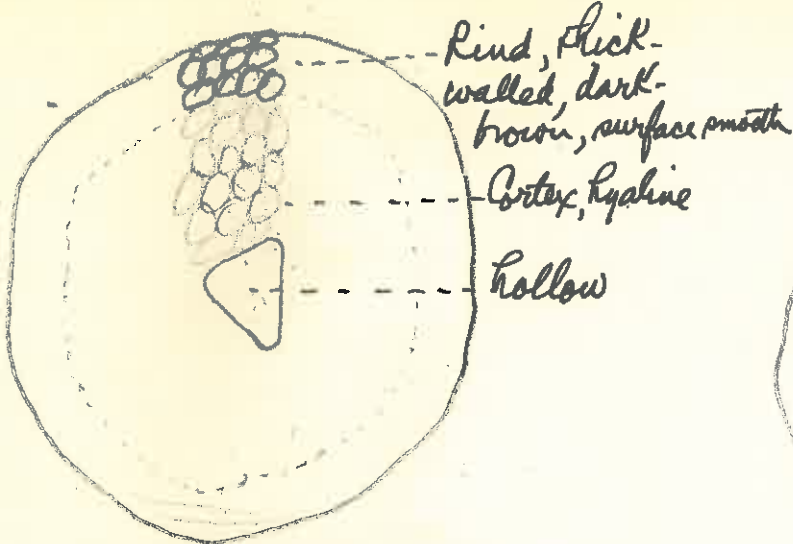
becoming dark brown downward,

Literature - Marasmius

Singer, Rolf. New genera of fungi. VIII.
~~Mycologia~~ ~~50~~ Notes concerning the sections
of the genus *Marasmius* Fr. *Mycologia*
50: 103-111. 1958.

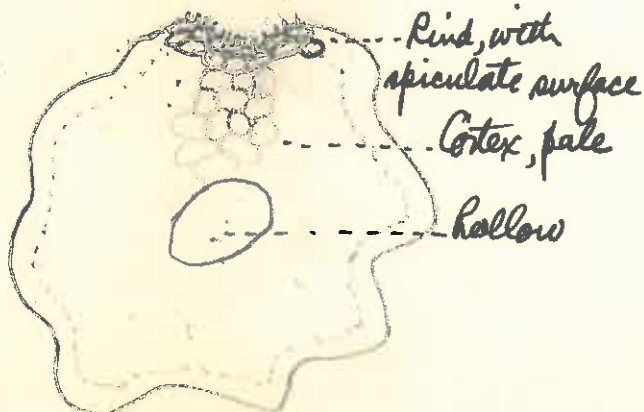
Singer, R. and A. P. L. Digilio. Prodrómo de la
flora agaricina Argentina. *Filloga* 25:
5-461. 1951. (*Marasmius*, pp. 183-217.)

Maxarmins : Spore Structure

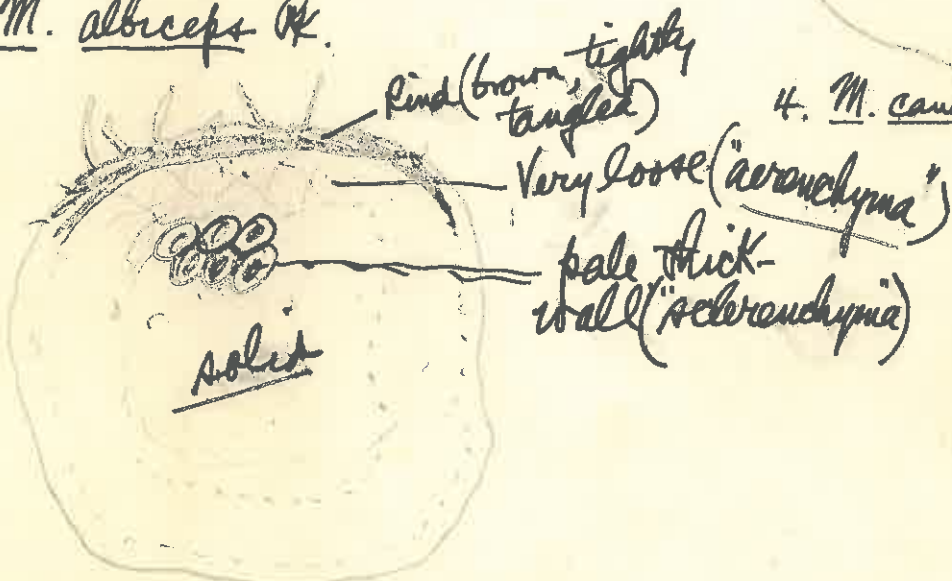


1. M. androsaceus T.; bellipes Morgan
capillaris Morg.; colgaricus (R. S.) Giesb.

2. M. No. 10383 (bakiceps?)
M. No. 12706 (biformis?)
M. colgaricus (acidulate caulocystidia)
M. delectans M. elongatipes



3. M. albiceps R.



4. M. candidus var. retulosus Joss. + Smith

5. M. oreades

MARASMIUS: GROUP I

Epicutis hymeniform, elements smooth

alachuanus Murr. 5

elongatipes Pk. 10

epiphyllus Fr. 8

epodius Bres. (also II) 2

insititius Fr. (?) 4

minutissimus Pk. 3

multivenosus Murr. 6

oreades Fr. 12

prasiosmus Fr. 1

scorodonius Fr. 11

sicciformis Murr. 7

No. 11789 9

MARASMIUS: GROUP II

Epicutis hymeniform, of "broom-cells"

- albiceps Pk. 28
atropurpureus Murr. 13 (= *tageticolor* Berk. ~~Murr.~~)
bellipes Morgan 17
callicarpellus Murr. 29
calopus Fr. (?) 30
capillaris Morgan 20
cohaerens (A. & S.) Quél. 22
delectans Morgan 21
epodius Bres. (also I) 2
floridanus Murr. 24
glabellus Pk. 26
graminum (Lib.) Berk. & Br. 14
hemisphaericus Murr. 33
minutus Pk. 27
octifolius Murr. 32
pulcherripes Pk. 18
rotula Fr. 19
setulosus Murr. 23
siccus (Schw.) Fr. 15
testaceiceps Murr. 25
No. 9177 31
No. 9645 16

MARASMIUS: GROUP III

Epicutis not hymeniform, with "broom-cells"

androsaceus Fr. 38 (also IV)

magnoliae Singer 35

~~nigripes (Scho.) Fr.~~
opacus B. & C. (also IV) 36

pruinosisipes Murr. 34

ramealis Fr. (?) 37

No. 10453 (androsaceus Fr.?) 38

Phujinus PK. 38a

MARASMIUS: GROUP IV

Epicutis not hymeniform, elements hyphoid

- | | |
|------------------------------------------------------------|----------------------------------------------------|
| 54 archyropus Fr. <i>microspora</i> | 52 resinosus (Pk.) Sacc. <i>micro</i> |
| 70 badiceps Pk. <i>micro</i> | 73 rubrophyllus Penn. <i>micro</i> |
| balansae Spetz. | 85 semihirtipes Pk. <i>micro</i> |
| 80 biformis Pk. <i>micro</i> | <i>Collybia</i> 78 spongiosus B. & C. <i>micro</i> |
| 67 caesius Murr. <i>micro</i> | 47 stenophylloides Murr. <i>micro</i> |
| 40 candidus Fr. <i>macro</i> | <i>micro</i> 62 subalbiceps Murr. <i>micro</i> |
| 46 candidus var. setulosus Joss. & Sm. | 75 subarchyropus Murr. <i>micro</i> |
| 51 castaneicolor Penn. <i>micro</i> | 63 subgraminis Murr. <i>micro</i> |
| 53 confluens (Fr.) Kummer <i>micro</i> | 88 subnigricans Murr. <i>micro</i> |
| 94 dichrous B. & C. (<i>fagineus</i> Morgan) <i>micro</i> | 98 subnudus (Ellis) Pk. ? <i>micro</i> |
| 76 domesticus Murr. <i>micro</i> | 81 subprasiosmus Murr. <i>micro</i> |
| 44 foetidus Fr. <i>micro</i> | 48 substenophyllus Murr. <i>micro</i> |
| 89 39 helionyses Murr. <i>macro</i> | 66 subsynodicus Murr. <i>micro</i> |
| 99 institutus Fr. | 101 superabundans Murr. <i>micro</i> |
| 99 leptopus Pk. <i>micro</i> | 102 urens Fr. <i>micro</i> |
| 43 2 nigripes (Schw.) Fr. <i>micro</i> | 91 velutipes B. & C. <i>micro</i> |
| 97 nolaneiformis Murr. <i>micro</i> | 60 vialis Pk. <i>micro</i> |
| 79 oligoinsulae Murr. <i>micro</i> | 64 Westii Murr. <i>micro</i> |
| 100 oleii B. & C. (?) <i>micro</i> | 89 No. 8101 (& others) <i>micro</i> |
| 36 opacus B. & C. (also III) <i>micro</i> | 90 No. 8954 <i>micro</i> |
| 50 pallidiceps Murr. <i>micro</i> | 58 No. 13984 <i>micro</i> |
| 68 perforans Fr. <i>micro</i> | 42 No. 15787 <i>macro</i> |
| 74 peronatus Fr. (?) <i>micro</i> | |
| 61 praeacutus Ellis <i>micro</i> | |
| 82 pseudoimpudicus Murr. <i>micro</i> | |
| 83 quercuum Murr. <i>micro</i> | |

(more, p. 2)

- 49 No. 17472 *micro*
 63 { No. 17628 } *micro*
 63 { No. 20486 }
 93 No. 18904 *micro*
 69 No. 19662 *micro*
 92 No. 20161 *micro* } *velutipes?*
 92 No. 20602 *micro* }
 72 No. 20485 *micro*
 77 No. 21071 *micro*
 45 No. 21089 *micro*
 96 No. 21365 (& others) *micro*
 71 No. 21343 *micro*
 56 No. 21699 *micro*
 57 No. 21858 *micro*
 59 No. 21988 *micro*
 41 No. 21989 *macro*
 87 No. 22138 *micro*
 84 No. 22292 *micro*
 86 No. 22313 *micro*
 45 No. 22315 *micro*
 55 No. 22375 *micro*

Kühner, R. Nouvelles recherches sur le genre
Marasmius. Ann. Soc. Linn. Lyon 79:99-120. 1936.

This is a treatment of species of Marasmius based on his studies published in Le Botaniste 25:57-114. 1933. For the species treated, he discusses the macroscopic and microscopic characters, chemical reactions, and relationships. General characters of the groups are also given.

Kühner, M. R. Etudes sur la genre Marasmius.

Le Botaniste 25:57-114. 1933.

ANALYTICAL KEY TO PROPOSED Sections (pp. 104-105)

- 1 { (Spores amyloid. M. caudicinalis (excluded from the
genus Marasmius)
(Spores non-amyloid..... 2
- 2 { (Epicutis of pileus composed of hair-like hyphae.....
.....Crinipellis stipitarius (excluded)
(Epicutis non-cellular, hyphae smooth..... 3
(Epicutis of irregular cells, cells broom-like (small
species attached to substrate)..... 5
(Epicutis of regular hymeniform cells..... 6
- 3 { (Cell walls of interior hyphae of the carpophore
separated by a mucilaginous development..... GLOEONEMAE
(Cell walls not so..... 4
- 4 { (Small species attached to the substrate.....RAMEALINAE
(in part)
(Large species more or less hairy or tomentose at base
of stipe.....PERONATEAE
- 5 { (Stipe horny, setose, dark colored: lamellae not
decurrent.....ANDROSACEAE
(Stipe more tender, less slender, pale colored; lamellae
frequently more or less decurrent at last.....RAMEALINAE
(in part)
- 6 { (Species relatively large, stipe not attached to sub-
strate, cuticular cells smooth, hyphae non-amyloid.. 7
(Species with different characters..... 8

- (Odor frequently of garlic; hyphae not red in cresyl
(blue.....ALLIATAE
- 7 (Odor not of garlic; long yellow hairs on epicutis
(which bear a brown intracellular pigment.....
(.....M. longipes (excluded from Marasmius)
- 8 (Stipe base hairy from hyphal filaments; small species
(or rather large with strongly amyloid hyphae,
(reddish in cresyl blue.....GLOBULARINAE
- (Small species with stipe attached to substrate by a
(naked base..... 9
- (Lamellae with a collar, without cystidia; stipe
(glabrous; hyphae amyloid.....ROTULAE
- 9 (Lamellae without a collar, with projecting fusoid
(cystidia, at least on the edge; stipe frequently
(pruinose or pubescent..... 10
- (Pileus white with cuticular cells frequently smooth....
(.....EPIPHYLLEAE
- 10 (Pileus more or less brownish-black, cuticle always
(with broom-cells.....HYGROMETRICEAE

MARASMIUS ALACHUANUS Murrill

Lloydia 5:140. 1942

Marasmius multivenosus Murr. Lloydia 9:320. 1946

"Pileus convex, umbilicate, cespitose, about 3 mm. broad; surface uniformly milk-white, glabrous, conspicuously sulcate to the center, margin entire; context very thin, white, unchanging, flexible and delicate but quickly reviving, with a slight odor of anise and the taste mild, slightly farinaceous; lamellae squarely adnate, distant, inserted, interveined, rather broad, entire, white, unchanging; spores ellipsoid, obliquely apiculate, smooth, hyaline, granular, about $6 \times 4 \mu$; cystidia none; stipe equal, terete or compressed, subhorny, hollow, smooth, glabrous, lustrous, white above, castaneous below, about $5 \times 0.2-0.3$ cm."

Habitat and Distribution. - On leaf-mold, Florida, August.

Notes on Type of M. alachuanus Murr.

No. 16209, part of type, collected at Gainesville, Florida, August 16, 1939.

Spores $6-7 \times 3.5-4 \mu$, ellipsoid, often obliquely apiculate, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epistoma of pileus composed of a palisade of pyriform, cuneate, to cubical, smooth cells, $15-20 \times 10-17 \mu$. Pileus and gill

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= Marasmius cohortalis var. alachuanus (Murr.) Sing.
Fl. Neotropica, Monogr. 17:281; 1976.

ANNOTATED BY

D. E. Desjardis

DATE

12 Dec. 1985

trama brown in 2% KOH and Melzer's reagent. Stipe hollow, not clearly differentiated into cortex and rind. Surface of stipe with scattered caulocystidia, bottle-shaped, fusoid or irregular; ^{stipe}
^ trama brown in 2% KOH, red in Melzer's reagent.

M. multivenosus is the same species. Murrill says the gills are more narrow in M. multivenosus but the dried material of the types do not show difference in gill-width.

Notes on Type of M. multivenosus Murr.

(Described in Lloydia 9:320. 1946)

Spores 5.5-6.5 x 2.5-3 μ , ovoid-ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of ellipsoid to cuneate or pyriform smooth cells, 17-28 x 10-15 μ . Stipe hollow; rind not sharply differentiated from cortex (Fig. 1); surface with a few caulocystidia (bottle-shaped, 20-26 x 4-5 μ). Stipe structure exactly like M. alachuanus.

MARASMIUS ALBICEPS Pk.

N. Y. State Mus. Ann. Rept. 43:67(21). 1890

Illustrations

Plate

Pileus 2-6 mm. broad, conic, white, finally pale straw color in age, glabrous, sulcate-striate. Flesh thin, white; odor slight, taste farinaceous. Lamellae adnate-decurrent, at times deeply decurrent, arcuate, white, broad, distant or subdistant, about 12 reaching stipe, alternating short ones, edges even. Stipe 2-4 cm. x 0.3-0.5 mm., black except white at apex, glabrous, shining, equal or broadened at apex, hollow, with a tuft of brown hyphae at base.

Spores 5-7 x 3-4 μ , ovoid, smooth, non-amyloid, *white in mass.*
Pleurocystidia and cheilocystidia none.

Cuticle of pileus cellular (parenchymatous), surface spiculate (broom-cells^x), cells irregular-shaped, variable in size, 15-40 x 18-30 μ . Pileus trama parenchyma-like, walls smooth. Stipe parenchyma-like, ^{"broom"} ~~surface~~ cells ^{"on surface"} brown with short (2-3 μ) spicules. Stipe trama pseudo-parenchymatous, colorless; center hollow (Fig. 3). Trama of pileus, gills, stipe brown in Melzer's and in 2% KOH.

Habitat and Distribution. - On fallen leaves of oak, spruce, and fir, North Carolina, July-August.

(more, next page)

Notes on Type

Studied October 1, 1956

Spores 6-7 (8) x 3.5-4.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of large broom-cells. Stipe hollow, cortex and rind as usual; surface of rind with "broom-cells" (Fig. 3).

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= Mycena albiceps (Pk.) Gilliam

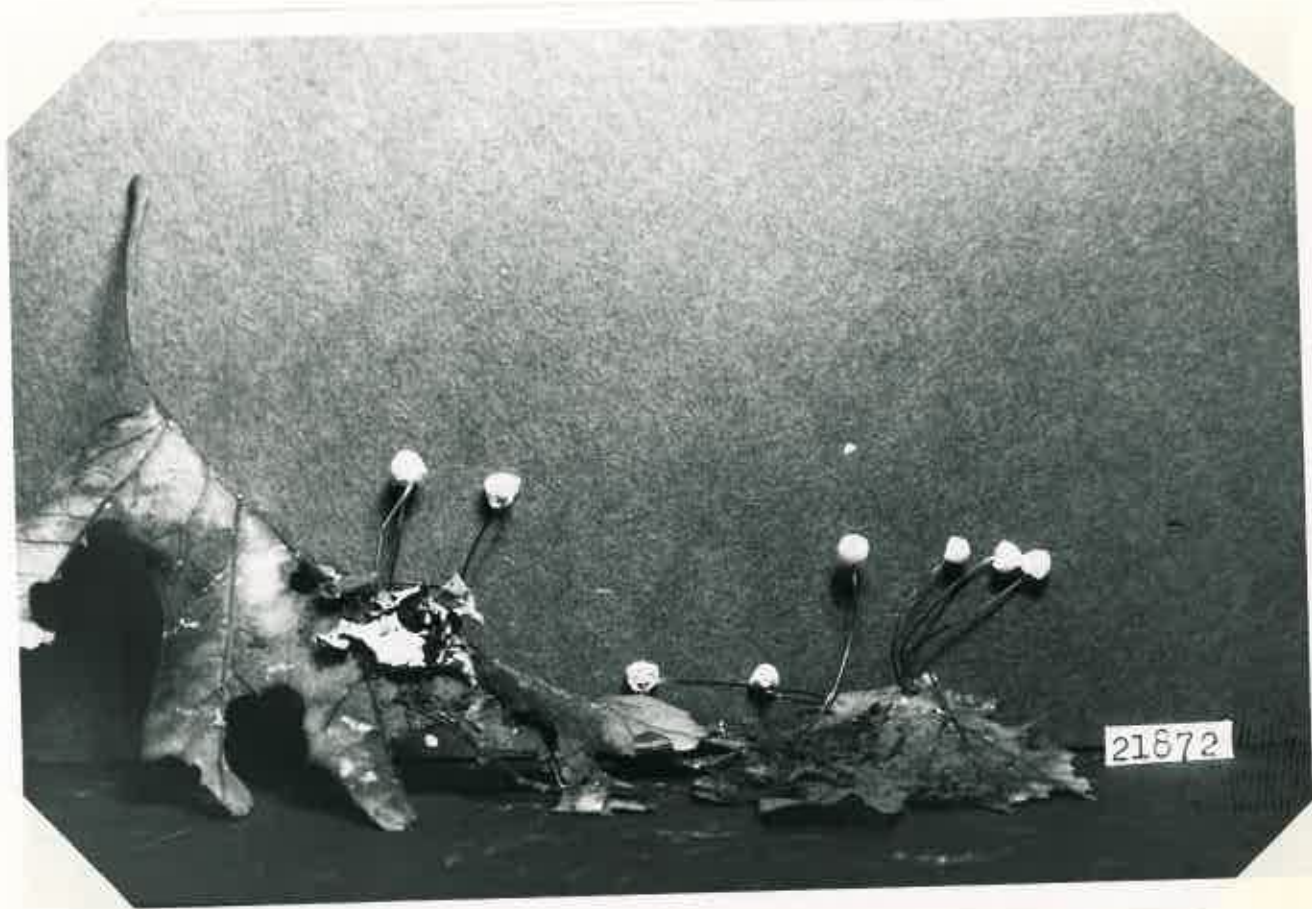
Mycetozon 4(1): 127: 1976.

ANNOTATED BY D.S. D. Jones

DATE 12 Dec. 1985

TENN 21872

Pileus epicutis a very thin layer of narrow, septate, filamentous, densely diverticulate hyphae; hypodermium of highly inflated, dextrinoid hyphae. Spores weakly amyloid. Lamellae strongly decurrent.



21872 - *Marasmius albiceps* Pk.

MARASMIUS ANDROSACEUS Fr.

Epicr. Myc. p. 385. 1838

Pileus 2-10 mm. broad, convex, at times slightly umbilicate, glabrous, "fuscous" to "light cinnamon drab," at times tinged pinkish, margin striate. Flesh membranous. Lamellae adnate, whitish, subdistant, broad, edges even or at times slightly fimbriate. Stipe 1.5-4 cm. x 0.2-0.4 mm., black, horny, drying sulcate, hollow.

Spores 6-⁸~~8.5~~ x 3-4 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia ~~none or few~~ ^{if any,} and then fusiform-clavate, 16-22 x 3-5 μ . Cuticle of pileus composed of appressed hyphae, broom-cells present, but rare. Trama of gills and pileus reddish-brown in Melzer's reagent; no color change in KOH. Stipe hollow, cortex of hyaline, pseudoparenchymatous cells; rind of closely-packed, dark-brown cells; all parts reddish-brown in Melzer's reagent.

Habitat and Distribution. - On dead leaves, in woods, general in the Southeast, July-August.

Discussion. - Broom cells on surface of pileus rare.

Notes on Authentic Material

Material from Herbarium, New York Botanical Garden

Studied October 4, 1956

(more, next page)

1. Collected by F. S. Earle, Redding, Connecticut (no date);
Spores 6.5-8 x 3.5-4 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia and cheilocystidia not observed. Epicutis
of appressed hyphae; no broom-cells found.
2. Collected by William Bridge Cooke (No. 20790),
Washington, September 27, 1947.
Spores 7-8 x 3-4 μ . Otherwise as above.
3. Collected by H. S. Jackson, Lake Temagami, Ontario,
August 31, 1946. Determined by H. S. Jackson.
Spores 7-8 x 3-4 μ ; pleurocystidia and cheilocystidia
none; no broom-cells found.
4. Collected by Rev. A. C. Waghorne, Newfoundland, July 30,
1898 (?). Named by C. H. Peck.
Same as No. 3 above.
5. Collected by Miss V. White, Bar Harbor, Maryland, 1901.
Spores 7-8 x 3-4 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia and cheilocystidia none. Epicutis of
appressed hyphae, a few broom-cells found (apparently
young pilei show these best!).

MARASMIUS ARCHYROPUS Fries

Epicr. Myc. 378, p. 1838

Marasmius confluens (Fr.) Quél.(?)

(N.A.F. 9:270. 1915)

"Pileus subfleshy, tough, convex to plane and depressed, gregarious or caespitose by the union of several plants by masses of mycelium at the base, 2-3 cm. broad; surface alutaceous, pallescent, often becoming nearly white, glabrous; margin thin, involute, except in the mature plants, even, smooth: context moderately thin, tough, whitish; lamellae white, yellowish when dry, adnexed, crowded, narrow: spores $8 \times 4 \mu$: stipe pale-reddish, usually appearing gray or white with a pruinose or tomentose coat, firm, rigid, stuffed or hollow, 11-14 cm. long, 2-3 mm. thick."

Habitat and Distribution. - Among leaves in woods, temperate North America.

Notes on Authentic Material

(Sent to New York Botanical Garden from Uppsala, Sweden, by Dr. Robert Fries)

Collection examined September 1, 1956.

Spores $5-6 \times 3-4 \mu$, pip-shaped, smooth, non-amyloid.
Pleurocystidia none; cheilocystidia clustered, cylindrical,

nodulose, 38-51 x 3.7-5 μ . Epicutis of interwoven, semi-
erect hyphae. Stipe hollow (Fig. 2).

(Lange regards this as the same as Collybia (Marasmius)
confluens. They are essentially alike!)

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Probably a species of Collybia according to Gilliam
[Mycotaxon 4(1): 128. 1976].

ANNOTATED BY

D.E. Desjardins

DATE

8 Jan. 1986

MARASMIUS BADICEPS Pk.

Torrey Bot. Club Bul. 24:142. 1897

Marasmius badius Pk. Torrey Bot. Club Bul. 22:487. 1895.

Not M. badius Berk. & Curt. 1868

Pileus 5-15 mm. broad, convex, glabrous, pale reddish-brown, margin sub-sulcate or even. Flesh thin, sub-membranous; odor mild (?), taste slightly unpleasant. Lamellae adnate, pallid, medium broad, distant. Stipe 3-5 cm. x 2-3 mm., black, tomentose, equal, hollow.

Spores 4-6 (7) x 2.5-3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Cuticle of pileus composed of appressed hyphae, no pilocystidia and no broom-cells, no color-reaction in KOH (2% and 15%), brown in Melzer's reagent. Stipe with a rind composed of thick-walled, brown cells, cortex of pale pseudo-parenchyma; rind and cortex reddish-brown in Melzer's reagent, no change in KOH; surface of rind with tangled, somewhat erect, pale brown hyphae.

Habitat and Distribution. - On decaying wood and soil, in deciduous woods, Tennessee and Kentucky, May.

~~Discussion. - This may be M. insititius Fr.~~

Notes on Authentic Material

Material from Missouri and Kentucky, identified by Peck, has been studied. Notes:

Spores 4-6 x 2.6-3 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia and cheilocystidia none. Epicutis of appressed
hyphae. Stipe hollow, nearly glabrous, with a few, short
hyphae (Fig. 2).

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TENN 10383 determined as M. badiceps Pk.

= Collybia semihirtipes (Pk.) Halling

Mycologia Memoirs 8: 57: 1983 - publ. by J. Cramer; Germany

ANNOTATED BY D. S. Desjardins

DATE 8 Nov. 1985

MARASMIUS BELLIPES Morgan

Jour. Myc. 11:207. 1905

Pileus 5-12 mm. broad, hemispheric, finally convex-expanded, "light corinthian red," disk "dark vinaceous," broadly umbonate, deeply sulcate to disk, velvety. Flesh thin, membranous, pale vinaceous; odor and taste mild. Lamellae free, rounded behind, no collarium, pink when young, at maturity white with a pink tint, edges often vinaceous, broad, distant, venose at cap, edges even. Stipe 4-5 cm. x 0.2-0.5 mm., dark brown below, apex pinkish-vinaceous, hollow, glabrous, base with a disk bearing brownish hyphae.

Spores 11-14 x 2.5-4 μ , lanceolate, smooth (spore-print failed), non-amyloid. Pleurocystidia ^{to none;} ~~clavate, 23-27 x 4-6 μ ;~~ cheilocystidia slender clavate, 18-26 x 3-4 μ .

Surface of pileus ^{cellular, cells} bearing brush-like pilocystidia, about 10-12 x 4-6 μ , with several erect "bristles." Trama of pileus and lamellae unchanged in KOH, reddish-brown in Melzer's reagent. Stipe hollow, cortex of thin-walled and colorless cells; rind of thick-walled, brown cells (Fig. 1). No color change in KOH; reddish-brown in Melzer's reagent.

Habitat and Distribution. - On fallen leaves, in deciduous woods, Tennessee, North Carolina, and Alabama, July-August.

(more, next page)

Notes on Authentic Material

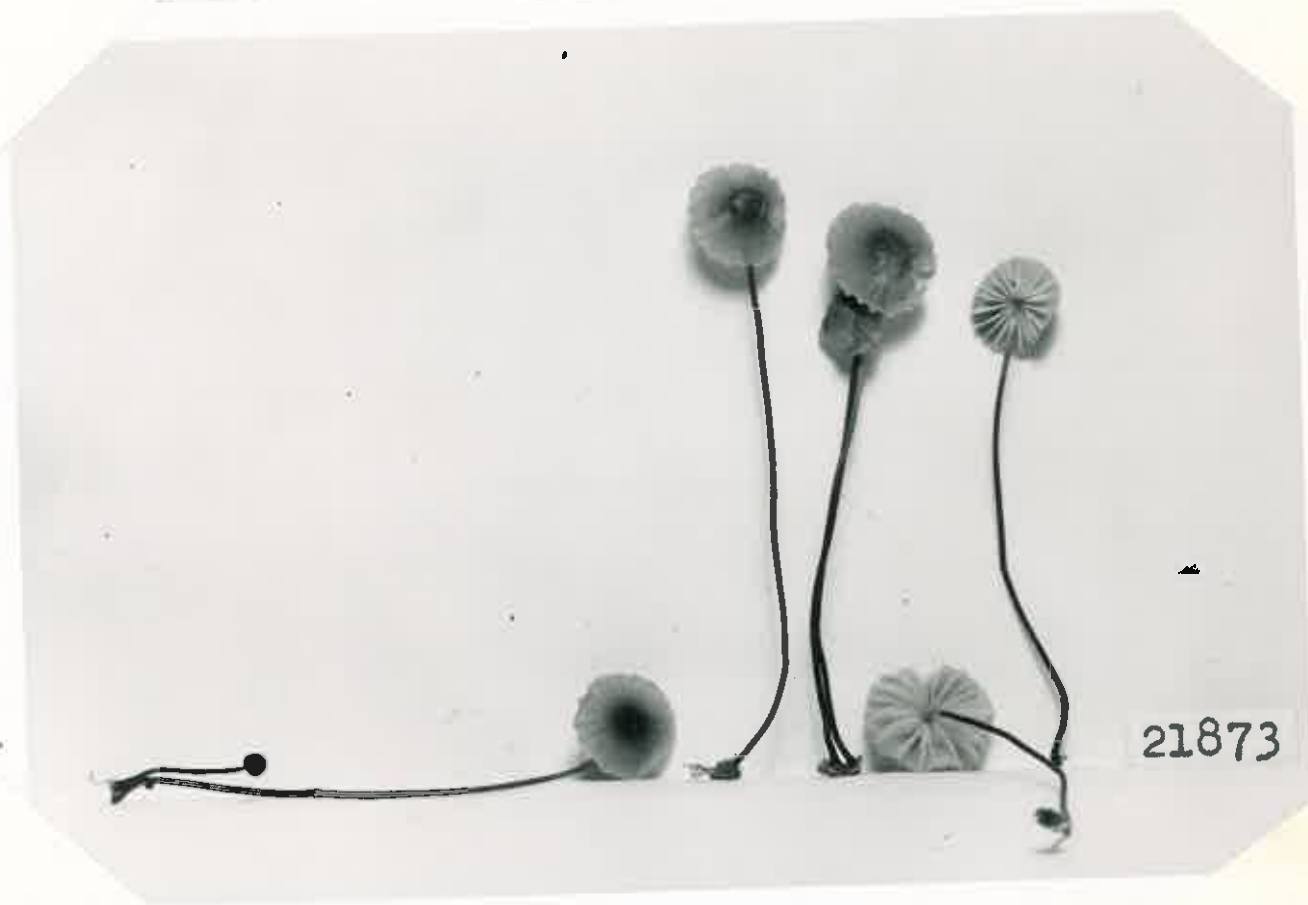
Specimens No. 708, from New York Botanical Garden,
collected by W. A. Murrill, Unaka Springs, Tennessee,
August 18-24, 1904.

Examined September 1, 1956.

Spores 10-12 x 3-4 μ , lanceolate, smooth, non-amyloid.
Pleurocystidia none; cheilocystidia clavate, 22-30 x 5-6 μ .
Epicutis of broom-cells. Stipe hollow (Fig. 1).

My No. 21873 agrees well with the above material, ~~except~~

for fl. in *~~21873~~.



21873 - *Marasmius bellipes* Morgan

MARASMIUS BIFORMIS Pk.

New York State Mus. Bul. ^{67:25. 1903.} ~~150:34. 1911~~

(N.A.F. 9:274)

"Pileus submembranous, thin, campanulate or nearly plane, often becoming umbilicate, gregarious, 8-16 mm. broad; surface glabrous, hygrophanous, striatulate when moist, rugose-striate when dry, bay-red or pale-chestnut when moist, grayish when dry: lamellae adnate and joined together at the stipe, rather close, not broad, grayish or creamy-^{yellow:}~~white~~ spores 5-6 x 3.5-4 μ : stipe even, slender, brown when moist, cinereous when dry, densely downy-pubescent, the base often tawny, 2.5 cm. long, 1 mm. thick."

Habitat and Distribution. - On soil, conifer woods; not reported from the Southeast.

Notes on Type

Type examined July 14, 1956.

Spores 5-7 x 2.5-3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe hollow; cortex and rind (Fig. 2.).

THE UNIVERSITY OF TENNESSEE

= Collybia biformis (Pk.) Singer
Sylowia 15:55; 1962.

ANNOTATED BY D. E. DeLoe

DATE 8 Nov. 1985

MARASMIUS CAESIUS Murrill

Torrey Bot. Club Bul. 67:148-149. 1940

"Pileus convex, gregarious, 5-8 mm. broad; surface smooth, pulverulent or finely tomentose, caesious or whitish, fading with age; context membranous, pallid, odorless; lamellae adnate, distant, rather broad, inserted, entire, white, unchanging; spores broadly ellipsoid, smooth, $4 \times 3 \mu$; spore-print a mass of stellate, nodulose or irregular bodies 6μ and more in diameter, some resembling jack-rocks; stipe tapering downward, pruinose, white above, murinous to blackish below, 1-1.5 x 0.1-0.2 cm.

"Type collected by W. A. Murrill on fallen oak sticks in a high hammock at Gainesville, Fla., May 28, 1938 (F 18263). Also collected by West and Murrill on trash under oaks at the Tung-oil Mill, west of Gainesville, June 22, 1938 (F 18358); and on sticks in oak woods at Gainesville in November, 1932, (F 9927, F 9935). The blue color fades quickly and does not appear in dried specimens."

Notes on Authentic Material (not the Type)

No. 8717 (determined by Murrill) examined August 31, 1956.

Spores 5-6.5 x 3-4 μ , ovoid to subellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe solid, glabrous or with irregular, very short surface filaments (Fig. 4, but usually glabrous).

The Holotype of Marasmius caesius Murr. is identical to Marasmiellus nigripes (Schw.) Sing. according to Singer, Beih. Nova Hedwigia 44: 299, 302, 1973.

ANNOTATED BY

D. E. Dyer

DATE

11 Jan. 1986

MARASMIUS CALLICARPELLUS Murrill

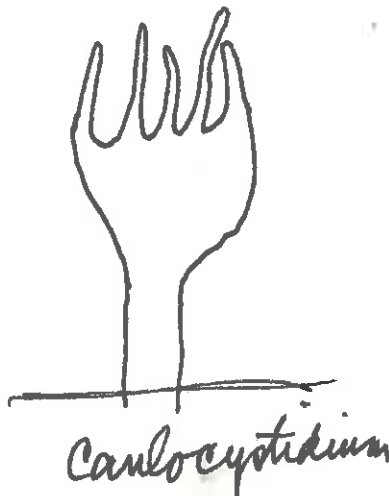
Lloydia 8:273. 1945

"Pileus convex to subexpanded, closely gregarious, about 1.5 mm. broad; surface dry, smooth, glabrous, ochraceous-isabelline, margin entire; even, becoming rugose-sulcate on drying; context membranous, pallid; lamellae adnate, inserted, medium broad, rather close, entire, white, discolored when dry; spores globose, smooth, hyaline, about $2\ \mu$; cystidia none; stipe capillary, smooth, glabrous, white above, dark-fulvous below, whitish-mycelioid at the base, about 1 cm. long.

"Type collected by E. West and W. A. Murrill on small dead fallen twigs in woods at Gainesville, Fla., Nov. 8, 1932 (F 9926). Minute but attractive."

Notes on Type (by L. R. Hesler)

Spores 7-8 x 3-4 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of broom-cells. Stipe hollow, with ^{stalked} caulocystidia of the broom-cell type, - similar to those comprising the epicutis.



MARASMIUS CALOPUS (~~Pers.~~) Fries

Epicr. Myc. 379. 1838

(NA.F. 9:282. 1915)

"Pileus soft, fleshy, convex to plane or depressed, 8-18 mm. broad; surface smooth, becoming rugose, light-yellow or white: lamellae emarginate-adnexed, thin, white: spores $7 \times 4 \mu$: stipe equal, reddish-brown, glabrous, not mycelioid, shining."

Habitat and Distribution. - Grass roots and among leaves in woods, New York to the Carolinas and west to Ohio and Michigan.

Discussion. - Ravenel reports it from Georgia, Florida, and South Carolina; specimens ^{are} in New York Botanical Garden, but these are hardly fit for critical study. In one specimen, glued to cardboard, the gills are subdistant, medium-broad. Bresadola, Icon. Myc. X:497. 1929, says M. calopus has subfusoid cystidia, $35-40 \times 4-6 \mu$. Some of the New York Botanical Garden specimens are M. delectans Morgan.

Notes on Peck's Collection

From Albany, collected at Gansevoort, New York, July; studied October 3, 1956.

Spores $7-8 \times 3.5-4 \mu$, pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia rarely seen, apparently widely scattered along gill-edge, when present stalked-

diverticulate, 20-28 x 3-5 μ (see sketch). Stipe hollow, as in Fig. 1, or with scattered caulocystidia (Fig. 2). Epicutis or large, irregular to smooth epidermal-like cells.

(more, next page)

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Marasmius calopus (Pers.: Fr.) Fr. is an inodorous form of
M. scordosporus according to Singer, [Nova Hedwigia 44: 316, 1973]

Marasmius calopus (Pers.) ex Quelet is a synonym of
M. cohaerens according to Gilliam [Mycotaxon 4(1): 59, 1976]

ANNOTATED BY D. S. D. D.

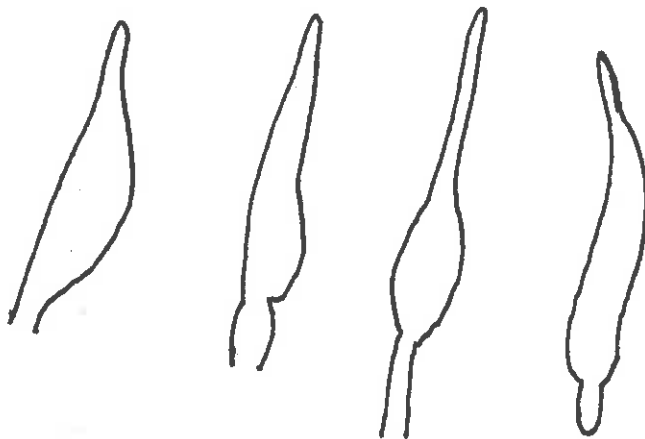
DATE 8 Jan. 1986

Marasmius calopus Fr.? (DELECTANS)

Specimens from New York Botanical Garden, collected by Underwood & Earle, Redding, Connecticut. The label bears a question mark after the binomial. *It is delectans!*

Examined September 1, 1956.

Spores 6-7.5 x 3-3.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia 30-42 x 5-7 μ , buried or projecting, irregular and variable in shape, irregularly aculeate, subfusiform to sub-ventricose, inconspicuous, staining reddish brown in Melzer's reagent and then very conspicuous. Epicutis of broom-cells. Stipe hollow (Fig. 2).



Types of pleuro- and cheilocystidia

This is M. delectans!

MARASMIUS CANDIDUS Fr.

Epicer. Myc. p. 381. 1838

Marasmius magnisporus Murr. Mycologia 4:166. 1912

Pileus 1-3.5 cm. broad, convex, expanding, sometimes depressed, at times umbonate, dry, white to pale pinkish, silky to pruinose, at times drying "vinaceous rufous" or darker, /glabrescent, sulcate-rugulose or plicate-striate ^{to disk.} Flesh membranous, soft, pliant, white; odor and taste mild or farinaceous, ^{to bitter.} Lamellae adnate-subdecurrent ^{or adnexed,} at times seceding, ^{subdistant to} distant, narrow in front, broader behind, forked and anastomosing, venose at cap, white or with a flesh-tint, edges fimbriate. Stipe 1-4 cm. x 0.7-^{3.5} mm., equal or tapering downward, apex white, elsewhere pale brownish to "avellaneous" or whitish, thinly ^{glabrescent,} pruinose or fibrillose, inserted, hollow.

Spores 9-16 (19) x (2.5) 3.5-5 μ , lanceolate to sub-pip-shaped, often slightly curved or with a curved apiculus, smooth, non-amyloid, white or pale yellow in mass. Pleurocystidia and cheilocystidia prominent, ^{cylindric, obclavate,} ventricose, ^{or} sub-fusiform, stalk and neck often long, slender, more or less bottle shaped, ³⁸⁻⁷⁰ ~~40-51~~ (100) x 2.5-3 (6) μ (apex) x 6-18 μ (below). Epicutis of appressed, interwoven hyphae, not diverticulate, with an occasional, flask-shaped or cylindric caulocystidium, 76-102 x 5-6 μ . Stipe hollow (Fig. 2).

Habitat and Distribution. - On deciduous limb and twigs, Tennessee, July-October.

(more, next page)

Notes on Murrill's Type of Marasmius magnisporus

Type examined September 2, 1956.

Spores 10-16 x 4-6 μ , subellipsoid ^{to} sublanceolate, smooth, non-amyloid. Pleurocystidia 40-51 x 7-10 μ , cylindric-subventricose, mostly collapsed and difficult to find; cheilocystidia similar. Epicutis of appressed hyphae. Stipe spongy-hollow (Fig. 2).

My No. 22374 agrees with type of M. magnisporus Murr.

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= Marasmiellus candidus (Bolt.) Sing.

Pap. Michigan Acad. Sci. 32: 129. 1946(1948)

Singer's M. albocorticis (Speg.) Sing. Lillm 22:300. 1951 is invalid.

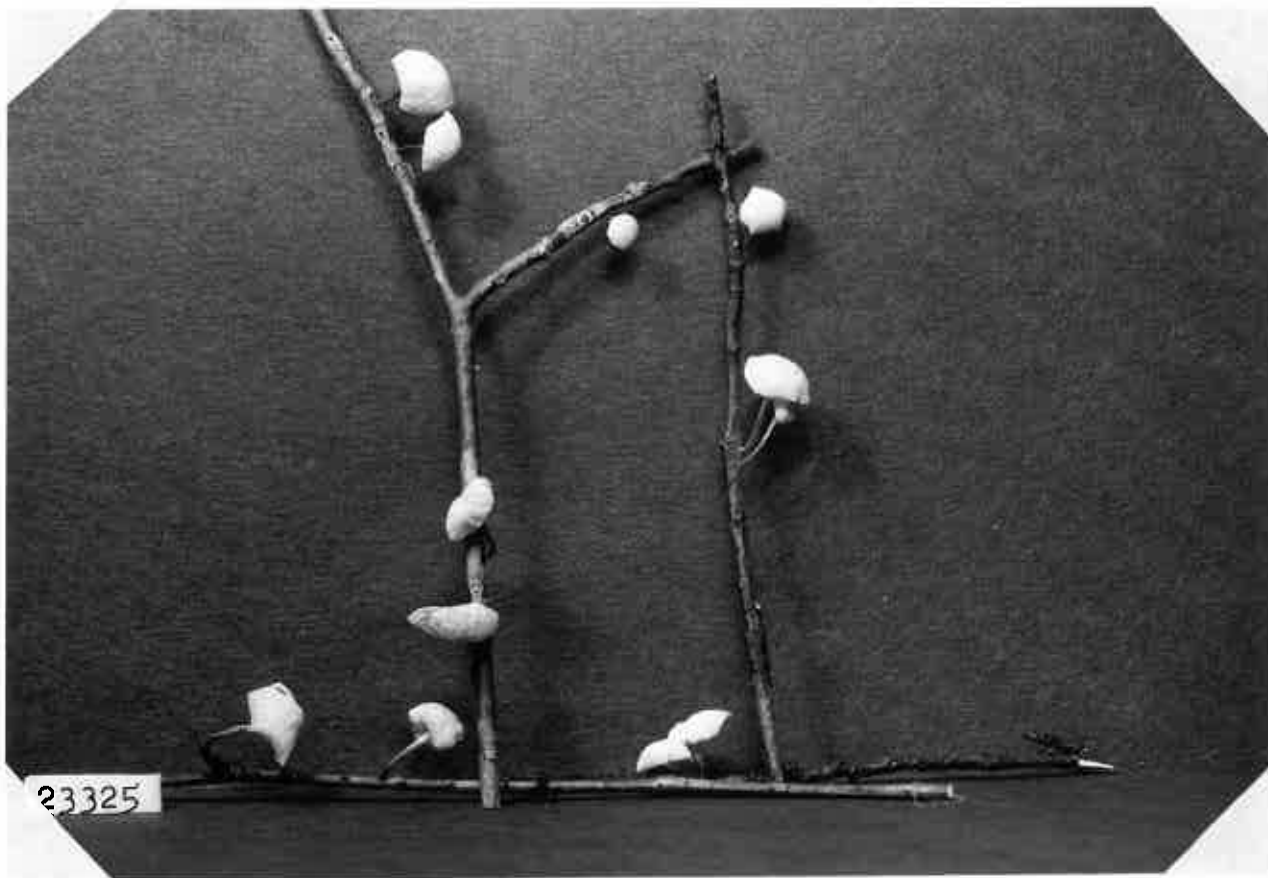
ANNOTATED BY

D. E. Delp

DATE

12 Dec. 1985

23366 - *Marasmius candidus* Fr.



23325 - *Marasmius candidus* Fr.

35173

MARASMIUS CANDIDUS

Cades Cove, July 10, 1969.

White. Stipe base soon black; elsewhere white.

MARASMIUS CANDIDUS var. SETULOSUS Joss. & Smith

Pileus 10-24 mm. broad, white, membranous, convex, finally plane and depressed-umbilicate, moist, appearing silky under lens, surface plicate-rugose. Flesh thin; odor and taste mild. Lamellae adnate, white, subdistant, narrow, venose, edges fimbriate. Stipe 10-15 mm. x 2-2.5 mm., dry, tapering downward, apex white, elsewhere brown, pruinose-silky, glabrescent, solid.

Spores ellipsoidal to lance-oblong, smooth, 7-8 x 3-4 μ . Pleurocystidia and cheilocystidia scattered, few or clustered on edges, similar, spindle-shaped to bottle-shaped, 50-64 x 14-16 μ . Surface of pileus of narrow, appressed hyphae, with scattered pilocystidia, flask-shaped 37-51 x 5-7 μ . Tramæ of pileus and lamellae reddish-brown in Melzer's reagent, unchanged in KOH.

Stipe solid with a rind; cortex of variable ^{or} ~~to~~ large, irregular cells with rather thick, brown walls; rind of cells similar to cortex, but smaller and walls darker, with scattered setulose tomentose hairs, 60-100 μ long. No color change in any part in KOH, and only slightly darker in Melzer's reagent.

Habitat and Distribution. - On fallen twigs, Tennessee, August.

Discussion. - Smith but says they are usually

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A valid transfer of this taxon into Marasmiellus has not yet been published. Singer [Bot. Nova Hollandia 44: 82, 1973] acknowledges its taxonomic affinity w/ sect. Sternophyllodes. If transferred to Marasmiellus as a variety of M. candidus, it would belong in sect. Candidi.

ANNOTATED BY

D. E. Dyer

DATE

11 Jan. 1986

MARASMIUS CAPILLARIS Morgan

Jour. Cinc. Soc. Nat. Hist. 6:194. 1883

Pileus 2-5 mm. broad, convex, umbilicate, pinkish
to dingy gray-brown or buffy brown (not matched),
cinnamon, umbilicus white, plicate-sulcate, slightly
wrinkled. Flesh membranous; odor and taste none.

Lamellae attached to a free collar, white, distant, rather
broad; stipe capillary, 2-3 (5) cm. long, inserted, black,
paler at the apex, glabrous, shining.

Spores 8-10 x 4-5 μ , long-ovoid to lanceolate, smooth,
non-amyloid. Pleurocystidia and cheilocystidia none.
Surface of pileus cellular, mostly of irregular, cuneate
broom-cells, 10-18 x 15-23 μ , spicules 5-8 μ long. Trama of
pileus and gills unchanged in KOH, reddish-brown in Melzer's
reagent. Stipe loosely-solid; cortex colorless; rind of thick-
walled brown cells (Fig. 1, but solid).

Habitat and Distribution. = On old leaves and sticks in
woods and on lawns, Tennessee, North Carolina, and Alabama,
June-August.

Notes on Authentic Material

Specimens (No. 3434) from New York Botanical Garden,
collected by F. S. Earle, from Redding, Connecticut.

Examined September 1, 1956.

(more, next page)

Spores 8-9 x 4-4.5 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia and cheilocystidia none. Epicutis of broom-
cells. Stipe spongy-hollow (Fig. 1).

My No. 19648 agrees with the above.

MARASMIUS CASTANEICOLOR Pennington

North American Flora 9:274. 1915

Pileus 8-12 mm. broad, convex, becoming slightly depressed, chestnut brown, glabrous, margin even. Lamellae adnate, whitish then pale cream, close, medium broad. Stipe 17-20 mm. x 1-1.5 mm., pruinose, dingy brown, equal, spongy.

Spores 5.5-7 x 2.3-3 μ , pip-shaped, smooth, yellowish-brown in Melzer's. Pleurocystidia 23-30 x 4-6 μ , slender fusoid; cheilocystidia 22-28 x 4-5 μ , slender clavate. Epicutis fibrillose, cells smooth, fibrils appressed. Stipe spongy, nearly hollow (Figs. 2 and 4).

Habitat and Distribution. - On strawberry crowns, Tenn., and on dead oak leaves, Louisiana, June-July.

Notes on Type

Type examined September 2, 1956.

Spores 6-7 x 2.7-3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia numerous, subfusoid, apex tapering somewhat, 17-23 x 3-5 μ ; cheilocystidia similar. Epicutis of more or less erect, brown hyphae. Stipe hollow (Fig. 2).

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TENN 12254 determined as Marasmius castaneicolor Penn.

= Collybia sp., sect. Loriculata (note w/ collection)

ANNOTATED BY

D. S. Dejeu

DATE

8 Nov. 1985

Agaricus

MARASMIUS COHAERENS (A. & S.) Quél.

Collybia lachnophyllus (Berk.) Sacc., Syll. Fung. 5:203. 1887

(Collybia) spinulifera Pk., N.Y. State Mus. Ann. Rept. 24: 62. 1872

Illustrations:

Plate

Pileus 1-3 cm. broad, cespitose, rarely scattered, convex, more or less expanding to campanulate, hygrophanous, "pinkish buff," disk "syal brown," surface velvety, margin even when dry, striatulate when wet. Flesh thin to medium, toughish, pallid to white; odor and taste disagreeable, strong. Lamellae rounded-adnate^{to adnexed} narrow, close, white becoming buff, edges purplish-brown at maturity, fimbriate. Stipe 6-10 cm. x 2-4 mm., bases confluent, pallid and white-pruinose above, reddish-brown and velvety-scurfy below, base strigose, becoming hollow, shining, equal, at times compressed.

Spores 7-9 x 3.5-4.5 μ , ovoid-ellipsoid, obliquely apiculate, smooth, non-amyloid (yellowish in Melzer's reagent), white in mass, yellowish after storage in herbarium.

Pleurocystidia numerous, conspicuous, brown, aciculate-lanceolate, 48-102 x 9-18 μ ; cheilocystidia similar.

Surface of pileus with scattered dermocystidia similar to pleurocystidia, and also with a solid turf of "broom cells" (brush-like with finger-like projections) 20-25 x 8-12 μ .

Pileus and gill trama reddish-brown in Melzer's. Stipe hollow; cortex of pallid, more or less angular, moderately thick-walled cells; rind similar, smaller with caulocystidia, 30-70 x 6-9 μ , aciculate, brown. No color in KOH, reddish-brown in Melzer's (Fig. 2).

Habitat and Distribution. - In deep humus and on decaying wood, in deciduous woods, Tennessee and North Carolina, May-October.



10687 - *Marasmius cohaerens* (A.+S.) Quél.

21381 - *Marasmius cohaerens* (A. + S.) Quel.



20416 - *Marasmius coloratus* Fr. - Bres.



19404 - *Marasmius cohaerens* Fr. - Bres.



21381 - *Marasmius coraerens* Fr. Bres.
(free-hand section of gill
from dried material)
(x about 250)



21381 - *Marasmius cohaerens* Fr. - Bres.

(x about 180)

MARASMIUS CONFLUENS (Fr.) Ricken

Blätterpilze Deutschl., p. 72. 1911.

Collybia confluens Fr., Epich. Myc., p. 88. 1838.

Pileus 2-6.5 cm. broad, convex, expanding-convex, hygrophanous, tough, whitish to grayish (dry), darker or reddish (wet), striatulate when moist. Flesh thin, pallid; odor and taste mild to slight. Lamellae free, narrow, crowded, whitish, edges floccose to rough. Stipe 5-11 cm. x 2-6 mm., tough, hollow, white-pubescent to tomentose, reddish beneath, at times grooved or compressed, bases often connate by mycelium.

Spores 4-6 x 3-4 μ , pip-shaped, white in mass. Pleurocystidia none; cheilocystidia clustered, cylindrical, at times becoming irregular-nodulose, 36-43 x 3-5 μ . Cuticle of pileus of more or less appressed or semi-erect hyphae, 3-6 μ diameter. ~~Epich. Myc. 88. 1838.~~

Habitat and Distribution. - In humus, in deciduous woods, gregarious or in fairy-rings, Tennessee and North Carolina, July-September.

omit
Discussion. - Compare closely with Marasmius velutipes and Marasmius archyropus.

THE UNIVERSITY OF TENNESSEE

= Collybia confluens Fr.
Epich. Myc. 88. 1838.

ANNOTATED BY D.S. Dyer

DATE 11 Jan. 1986



20512 - *Collybia confluens* Fr.
Moravian



19141 - *Collybia confluens* Fr.
Marasmius

Marasmius cyrtidioides (Smith + Hesler) Gilliam
Myrastom 4(1): 47. 1976

Collybia cyrtiosa Smith + Hesler

J. Elisha Mitchell Sci. Soc. 56: 305. 1940

Type: North Carolina: Swain Co., Great Smoky Mts. Nat. Park, Indian Creek,
Hesler 12195 (MICH)

MARASMIUS DELECTANS Morgan

Jour. Myc. 11:206. 1905

white or pale yellow
when dry

Pileus 10-40 mm. broad, convex, expanding plane, at times wavy-upturned, sometimes broadly and obtusely umbonate, *hygrophanous*, ~~white to~~ "light buff," disk "naples yellow," *when wet* ~~becoming pale yellow on drying~~, surface rugulose, flocculose, glabrescent, plush-like, striate to disk. Flesh thick on disk, thin elsewhere, pliant, white; odor and taste mild to slight. Lamellae adnate to adnexed or nearly free, white, becoming pale yellow, sub-distant, venose, at times anastomosing, medium broad, many short, edges even to flocculose. Stipe 2-6 cm. x 0.5-2 mm., apex white, elsewhere brown, equal, glabrous, base white mycelioid, tough, hollow.

Spores (6) 7-8 x (2.5) 3.5-4.5 μ , lanceolate, smooth, non-amyloid, white in mass. Pleurocystidia fusoid to sub-fusoid or irregularly sub-ventricose, slender with a long slender neck, 40-58 x 5-6 μ (neck 1.5-2 μ), reddish-brown in Melzer's reagent; cheilocystidia similar, shorter.

Surface of pileus composed of pyriform to cuneate cells, with 8-18 (27) x 3-8 μ . broom-like appendages, / Pileus and gill trama color unchanged in KOH, reddish-brown in Melzer's reagent. Stipe hollow; cortex colorless, cells closely packed, somewhat angular; rind of dark brown cells, with an occasional, more or less aciculate caulocystidium (Fig. 2).

Habitat and Distribution. - On fallen leaves and twigs, in deciduous woods, Tennessee, July-October.

Discussion. - This species is striking because of pleurocystidia and cheilocystidia which are inconspicuous, but in Melzer's reagent are brown and stand out conspicuously.

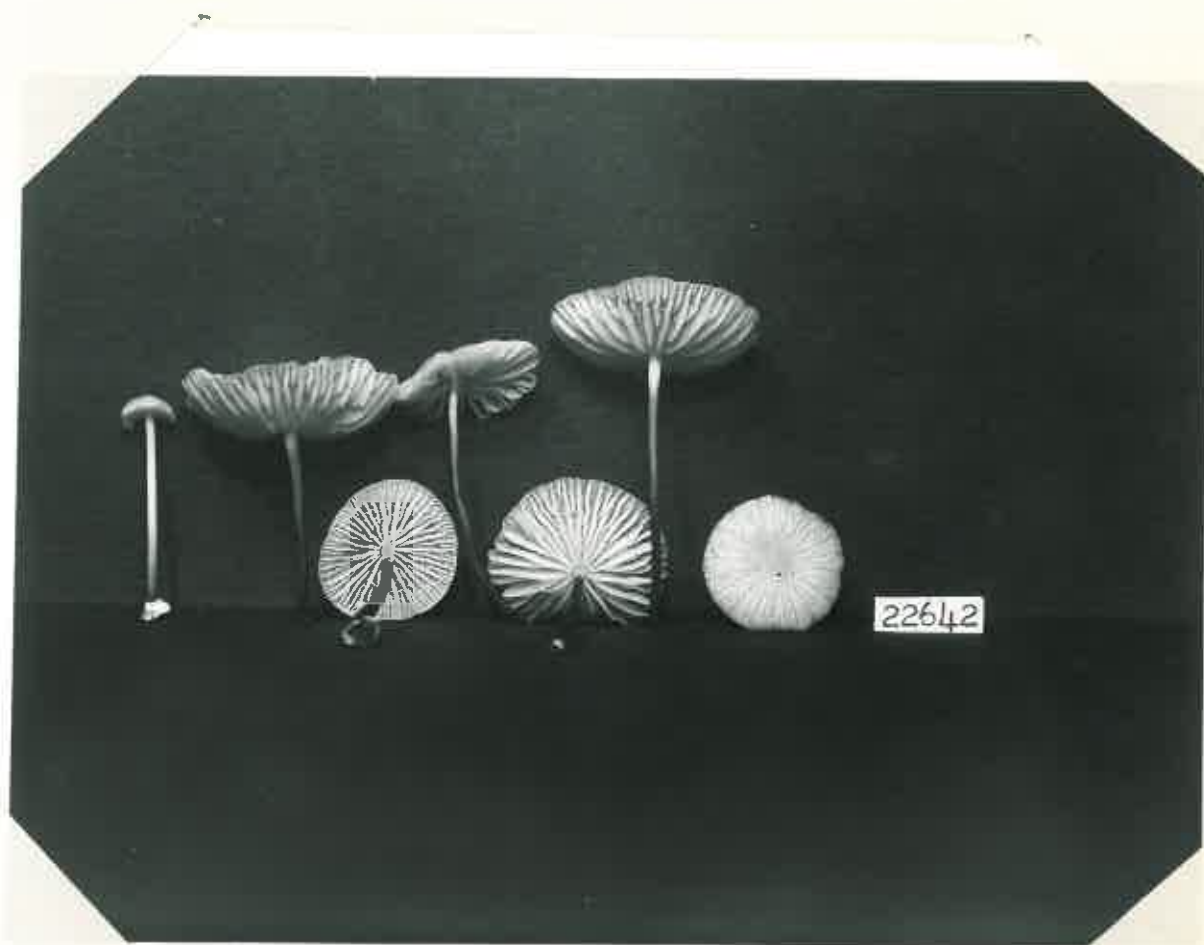
Notes on Authentic Material

Specimens from New York Botanical Garden, collected by Underwood & Earle, Redding, Connecticut.

Examined September 1, 1956.

Spores 6-7 x 3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia 26-48 x 3-7 μ , buried or projecting, brown in Melzer's reagent, irregularly sub-fusiform, subventricose, or sub-aculeate. Epicutis of broom cells. Stipe hollow (Fig. 2).

My No. 20897 agrees with the above material.



22642 - *Marasmius delectans* Morgan

MARASMIUS DICHROUS Berk. & Curt.

Ann. Mag. Nat. Hist. II. 12:426. 1853

Marasmius fagineus Morgan. Cinninnati Soc. Nat. Hist. Jour.

6:192. 1883

Fileus 0.7-4 cm. broad, hemispheric-convex, then convex, finally plane, at times somewhat depressed, fleshy, dry, silky becoming glabrous, "buffy brown" or reddish-brown to pinkish-cinnamon, even or striate to rugose-striate. Flesh thick or thin, pliant, whitish; odor and taste mild. Lamellae adnate often narrowly so to almost free, close, medium broad, narrowed in front, at first whitish, becoming brownish, at times spotted, crisped, venose at cap, edges fimbriate. Stipe 1-3 cm. x 1-3 mm., reddish, apex paler, whitish-villose to furfuraceous, strigose at base, at times compressed, equal, hollow, base sub-bulbillate.

Spores 7-10 (12) x 2.5-3.7 μ , oblong to sub-pip-shaped, with a curved apiculus, smooth, non-amyloid. Pleurocystidia none; cheilocystidia 32-48 x 8-11 μ , clustered, clavate, apex rounded or flattened. Cuticle of appressed hyphae. Stipe hollow; rind not always sharply differentiated from cortex (Fig. 2).

Habitat and Distribution. - On logs and twigs of oak and elm, Tennessee and South Carolina; probably throughout the Southeast, June-August.

Notes on Authentic Material

Specimen No. 299 from New York Botanical Garden,
collected by Murrill & House, Vanderbilt Estate, Transylvania
County, North Carolina, July 13-24, 1908.

Examined September 2, 1956.

Spores 9-11.5 x 3-4.5 μ , elongate, smooth, non-amyloid,
not many found. Pleurocystidia and cheilocystidia none
(^{ch}present in Tennessee material). Epicutis of brownish,
appressed hyphae. Stipe hollow (Fig. 2).

My No. 11449 agrees with the above.

THE UNIVERSITY OF TENNESSEE
= Collybia dichrous (Berk. & Curt.) Gilliam
Mycotaxon 4(1): 130. 1976.

ANNOTATED BY D.E. Dizin

DATE 11 Jan. 1986

MARASMIUS DOMESTICUS Murrill

Torrey Bot. Club Bul. 66:160. 1939

"Pileus convex to plane or slightly depressed, often with a small umbo, gregarious to subcespitose, 2-3 cm. broad; surface glabrous, more or less striate and uneven, dark-isabelline when fresh and moist, paler when dry; context thin, submembranous, discolored, odorless, mild; lamellae squarely adnate, rather broad, inserted, medium distant, entire, avellaneous; cystidia none; spores ellipsoid, smooth, hyaline, about $6 \times 4 \mu$; stipe enlarged at the apex, smooth or striate, pruinose, avellaneous, 3-4 x 0.2-0.3 cm.

"Type collected by Erdman West on his lawn in Gainesville, Fla., June 3, 1938 (F 18279). Also collected by W. A. Murrill on open grassy lawns or shaded soil in Gainesville from July to October, 1938 (F 18283, F 18288, F 18284). A typical member of this large and difficult genus, occurring at times in abundance."

Notes on Type (by L. R. Hesler)

Spores 6-7 (8) x 4-5 μ , ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of nearly parallel, appressed hyphae. Stipe solid; cortex and rind moderately well differentiated; surface with a few scattered, short, hyphoid "caulocystidia."

MARASMIUS ELONGATIPES Peck

Buffalo Soc. Nat. Sci. Bul. 4:181. 1883

nom. nov. for Marasmius longipes Pk.

Bull. Buffalo Soc. Nat. Sci. 1:58. 1873

[Non Marasmius longipes Mont. Ann. Nat. Sci. Bot. IV, 1:114. 1854]

Pileus 8-12 mm. broad, convex, "cinnamon buff" to "tawny," disk "cinnamon," glabrous, striate. Flesh thin, white; odor and taste mild. Lamellae adnexed, narrow, sub-distant, white, edges fimbriate. Stipe 5-14 x 0.5-1.5 mm., equal, brown or yellowish-brown, apex white, pruinose to white-tomentose at the apex, tawny-hairy downward, radicate, hollow.

Spores 6-8 x 3-4 μ , pip-shaped, smooth, non-amyloid, ^{white in mass.}
Pleurocystidia scattered, ^{projecting} ~~prominent~~, fusoid-ventricose, ^{more or less}
capitate, 33-55 x 5-7 μ ; cheilocystidia more numerous,
similar. Epithelium composed of one or two brownish layers
of cells which are subglobose, cuneate, loaf-shaped, or
epidermoid, surfaces smooth. Pileus and gill-trama unchanged
in KOH, and non-amyloid (in Melzer's). Stipe hollow; cortex
of colorless, closely-packed, \pm angular cells; rind thick,
blackish-brown, with numerous yellowish-brown surface
tomentose hairs, 75-175 x 4-6 μ (Fig. 2).

Habitat and Distribution. - On humus, in deciduous and
mixed woods, Tennessee and Virginia, May-October. Nos.
9644, 11410, 4131 agree with TYPE.

(more, next page)

Notes on Type

Type studied July 14, 1956.

Spores 7-8 (9) x 3-3.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia similar, fusoid-ventricose, at times subcapitate, 32-42 x 6-8 μ . Epicutis composed of one or two layers of cuneate to epidermoid brown, smooth cells. Stipe hollow; cortex and rind (Fig. 2).

THE UNIVERSITY OF TENNESSEE

= Marasmius pyrocephalus Berk.

London J. Bot. 6: 316. 1847

according to Gilliam, Contr. Univ. Mich. Herb. 11(2): 36. 1975.

ANNOTATED BY

D.E. Davis

DATE

11 Jan. 1986

MARASMIUS EPIPHYLLUS Fries

Epicr. Myc. 386. 1838

(N.A.F. 9:277. 1915)

"Pileus membranous, plane, at length subumbilicate, 2-10 mm. broad; surface plicate, rugose, milk-white, often becoming light-brown in age, margin not striate: lamellae adnate, few, rather narrow, often vein-like, distant, venose-connected, white: spores $8-9 \times 3 \mu$; cystidia awl-shaped, $25-30 \times 5 \mu$: stipe equal, inserted, horny, fistulose, brown below, light above, pruinose or very slightly velvety, 2-5 cm. long, 0.5-1 mm. thick."

Habitat and Distribution. - On leaves, sticks, etc., temperate North America.

Notes on Cooke's Idaho Collection

Specimen from New York Botanical Garden, collected and determined by William Bridge Cooke, Lewis County, Idaho, October 11, 1947.

Examined September 2, 1956.

Spores (8) $9-11 \times 3-4.5 \mu$, subfusiform to sub-ellipsoid, smooth, non-amyloid. Pleurocystidia $25-30 \times 5-7 \mu$, projecting, awl-shaped to ventricose; cheilocystidia similar. Epicutis cellular, cells smooth, $9-12 \times 9-12 \mu$, subglobose to cuneate, with scattered ventricose pilocystidia, $25-30 \times 8-10 \mu$. Stipe hollow, with numerous subventricose caulocystidia, $20-30 \times 4-6 \mu$.

MARASMIUS EPODIUS Bres.

Fungi Trid. 1:88, 1887

Pileus 8-35 mm., convex, pallid (near "tilleul buff"), glabrous, slightly hygrophanous, deeply sulcate to disk, margin crenate. Flesh pallid, medium thin; odor none, taste (after a time) sub-alkaline. Lamellae free, broad, ventricose, distant, "tilleul buff," edges even. Stipe 3-7 cm. x 1-1.5 mm., apex whitish, reddish brown and darker downward, somewhat pubescent, strigose at base, hollow.

Spores 17-25 (31) x 3.5-⁶~~5.7~~ μ , lanceolate, often slightly curved, smooth, white in mass, ^{pale yellowish to} yellowish-brown in Melzer's reagent. Pleurocystidia and cheilocystidia none. Epicutis of globose, subglobose, pyriform, or cuneate, ⁷~~12~~-28 x ⁵~~12~~-20 μ , smooth. Stipe hollow (fig. 1).

Habitat and Distribution. - On humus, in woods, Tennessee, June-August.

Marasmius epodius Bresadola

(from Jour. Elisha Mitchell Sci. Soc. 56:317-318. 1940)

Pileus 10-25 mm. broad, obtuse to broadly convex, deeply and distantly sulcate or plicate to the nearly smooth disk, glabrous, color whitish ("tilleul buff") to the watery whitish or pale "avellaneous" disk, the margin appearing crenate; flesh membranous, whitish, pliant, odor and taste mild; lamellae distant (14-15 reach the stipe) one tier of short individuals near the margin, broad (3-5 mm.), free or attached only by a short tooth, "tilleul buff" when young, pallid brownish in age, edges even; stipe 3-6 cm. long, 1-1.2 mm. thick, equal but attached to the substratum by a soggy bulbous mass of fibrils, pale brownish (near "Dresden brown") toward the base, whitish above, appearing glabrous when moist but when faded the lower portion showing a faint pubescence; pileus-trama corticated by a palisade of hyaline smooth clavate cells 20-25 x 8-12 μ , (occasionally a few cells with obtuse or somewhat pointed projections are found), the remainder of the trama homogeneous and bright red in iodine; pleurocystidia and cheilocystidia not differentiated; basidia four-spored; spores 19-25 x 4-5 μ (deposits), lanceolate toward one end, narrowly clavate at the other, not amyloid.

Singly on dead stems of herbaceous plants in the woods, Husky Gap Trail, Great Smoky Mountains National Park, Tenn., August 4, 1938 (9709-S). The collection consisted of two specimens and is deposited in the University of Michigan Herbarium.

There has been considerable discussion of this species in the literature. Maire (10) has described a variety, M. epodius var. microsporus, with small spores. Kühner (9) has described pleurocystidia for this variety. Battetta (1) in his account of the species also described the gills as having cystidia. Jossierand (7) has placed M. epodius in synonymy with M. littoralis Quel., but did not give a complete account of the microscopic characters of the specimens from Bresadola's herbarium which he studied. The two specimens collected in Tennessee differ from the descriptions of the French mycologists in lacking pleurocystidia and cheilocystidia, and in having smooth thin-walled hyaline clavate cells in the palisade layer forming the surface of the pileus. Clavate cells with scattered projections were found but they were rare and by no means characteristic. Our observations, admittedly were made from scanty material and revive the question of the synonymy of M. littoralis and M. epodius. Three possibilities suggest themselves: The American specimens may represent a distinct species different from either of the European species. The nearly smooth pileus, the very faintly pubescent stipe (when faded) and habitat on herbaceous stems in forests might be distinctive although we are inclined to believe they are not. It is also possible that there exists a single species in which spore size, occurrence of cystidia, and the type of cells forming the palisade of the pileus are all variable. We are inclined to place great emphasis on anatomical characters, and believe that the amount of variation mentioned above must be proved before it can be accepted. Finally, it seems possible that only two species exist, M. littoralis Quel. and M. epodius Bres. The former characterized by conspicuous cystidia and smaller spores. Since Bresadola described and illustrated cystidia for many species of Marasmius, it is logical to assume that, if he omitted any mention of them in a description of a new species, it was because he had not observed them. Consequently we are using Bresadola's name for the American collection. We are obviously not in a position to settle the question at this time because of the difficulties caused by the war.

We have not been able to find a description of an American species which even closely approaches that of M. epodius. Marasmius manginisporus Murr. is an entirely different type of fungus.

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TENN 3654, 22578, 25530, 35579 determined as M. epodius =

Marasmius decipiens Halling, Degardin & Tish

Mycotaxon 22(2): 474. 1985

ANNOTATED BY D. E. Degardin

DATE 11 Dec. 1985



22578 - *Marasmius epodius* Bres.



225⁷⁸~~80~~ - *Marasmius epodius* Bres.

25530

MARASMIUS EPODIUS Bres.

~~PHOTO~~

on humus, Kephart Prong, June 7, 1963

Pileus 7-17 mm. broad, hemispheric, not expanding, grayish, disc at times smoky, glabrous, usually more or less rugulose, deeply sulcate-striate or plicate. Context whitish, soft; odor mild, taste slight and becoming unpleasant.

Lamellae adnate, ascending, distant, medium broad, tinged grayish, faintly venose at cap.

Stipe 3-6 cm. x 1.5-3 mm., white above, reddish-brown below, slightly white-pruinose at apex, base white strigose, equal, hollow.

MARASMIUS FLORIDANUS Murrill

Torrey Bot. Club Bul. 67:149. 1940

M. balansae Spec.)

Pileus 2-5 cm. broad, hemispheric-convex, finally expanded more or less plane, "zinc orange," "Kaiser brown" or "auburn," velvety (under lens), margin even. Flesh thin, white; odor and taste mild or sub-alkaline. Lamellae narrowly adnate, rather close to subdistant, medium broad, white, in age rusty, edges even or nearly so. Stipe 2-5 cm. x 0.5-2 mm., pallid or reddish-brown, apex pulverulent, glabrous below, twisted, hollow, equal.

Spores 8-12 x 2.5-3.0 μ , pip-shaped to subfusoid, smooth, non-amyloid, in mass: white with a tinge of cream. Pleurocystidia irregularly subfusoid to subcylindric, buried, inconspicuous, apex often capitate to appendiculate, 25-30 (40) x 5-6 μ ; cheilocystidia similar. Epicutis of pileus with conspicuous broom-cells, 15-18 x 7-9 μ . Stipe hollow; cortex and rind usual (Fig. 1).

Habitat and Distribution. - On dead wood and fallen leaves, Florida and Tennessee, July.

Discussion. - Notes on type: Spores 8-11 (12) x 2.3-2.8 μ (Murrill says 6-8 x 2.5-3 μ), slender pip-shaped, smooth, non-amyloid. Pleurocystidia 33-40 x 4-6 μ , cylindric, subfusoid, at times appendiculate, often not conspicuous; cheilocystidia similar, 25-30 x 4-6 μ . Epicutis of small broom-cells with rather long (8-10 μ) bristles. Stipe hollow (Fig. 1).

This should be compared with M. plicatilis to which it has a general resemblance. It differs from plicatilis in its even margin, smaller spores (in plicatilis the spores are given by Smith as 11-14.8 x 5-6.5 μ), and presence of pleurocystidia, and without spiny projections on cheilocystidia.

Singer says M. Balansae Speg. has priority & should be used, - M. floridanus Murr. thus becomes a synonym (Agar. p. 326).

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Both Marasmius balansae Speg. and Marasmius floridanus Murr. are synonymous with:

Marasmius sphegazzinii Sacc. & Sydow. Syl. Fung. 14: 117. 1899 according to Singer, Fl. Neotropica 17: 234. 1976 - according to Singer.

ANNOTATED BY D. S. Desjard

DATE 11 Jan. 1986

ANNOTATION LABEL

H. D. Thiers Herbarium, San Francisco State University (SFSU)

Name: Type of M. balansae (\equiv M. sphegazzinii) no longer exists. North American material best regarded as M. floridanus. - see Mycologia 83(1): 30-39. 1991

Det.: Dennis E. Desjardin

Date: July 1991



21390 - *Marasmius floricornis* Murr.
cohaerens?

MARASMIUS FOETIDUS Fr.

Epicr. Myc. p. 380. 1838

Pileus 1-3.5 cm. broad, plane, disk slightly depressed, "tawny," glabrous, striate to disk. Flesh thin, pale reddish-brown, tough; ^{of skunk,} odor ~~and~~ ^{disagreeable} taste ~~of skunk~~. Lamellae annulate-adnexed (joined in a collar behind), white, subdistant, medium broad, ventricose, many short, thick, edges fimbriate. Stipe 1-2.5 cm. x 1-3 (8) mm., often compressed, equal or tapering down, white-tomentose, buff throughout or base dark brown, central to eccentric, tough, stuffed then hollow.

Spores 5-8.5 x 3-4 μ , pip-shaped, yellowish in Melzer's, white in mass. Pleurocystidia none; cheilocystidia clavate, 18-22 x 5-6 μ . Pileus cuticle of brown appressed hyphae. Stipe hollow (fig. 2).

Habitat and Distribution. - On dead twigs and logs of deciduous and conifer trees, Tennessee and North Carolina, June-September.

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= Micromphale foetidum (Sow. Fr.) Sing.
Lloydia 8: 182. 1945.

ANNOTATED BY D. S. Dyer

DATE 11 Jan 1986



18993 - *Marasmius foetidus* Fr.



21868 - *Marasmius foetidus* (Sow.) Fr.

Crimpellia foliicola Enger

Myxologia 47: 771. 1955.

Hab. & Distr. — On decaying leaves of Smilax sp.,
Florida, August 30, 1942.

MARASMIUS GLABELLUS Pk.

New York State Mus. Ann. Rept. 26:66. 1874

(N.A.F. 9:282)

"Pileus membranous, convex to expanded, 6-15 mm. broad; surface dark-ochraceous, often roughened on the disk, pruinose with cystidia, margin distantly striate: lamellae free, unequal, interveined, distant, broad, ventricose, whitish: spores $9 \times 4.5 \mu$; cystidia pointed, 30-40 μ long: stipe horny, equal, hollow, reddish-brown or chestnut, glabrous, shining, white at the apex, thickened and mycelioid at the base, 2.5-3 cm. long, 1 mm. thick."

Habitat and Distribution. - On fallen leaves; in temperate North America, and probably in the Southeast.

Notes on Type

Type studied July 14, 1956.

Spores 6-8.5 \times 2.5-3.5 μ , ellipsoid, at times sub-fusoid, smooth, non-amyloid. Pleurocystidia fusiform, 42-51 \times 5-7 μ ; cheilocystidia clavate, 24-28 \times 6-8 μ . Epicutis of cuneate broom-cells. Stipe hollow; cortex of sclerenchyma-like, sharply-angular cells, rind of several layers of compact, thick-walled cells (Fig. 1).

Murrill's description (N.A.F. 9:282) says pileus 6-12 mm. and membranous. Type larger (10-28 mm.), and sub-fleshy. Murrill says cystidia present; type shows fusiform pleurocystidia 42-51 \times 5-7 μ , and clavate cheilocystidia 24-28 \times 6-8 μ . My No. 9645 is not this at all.

MARASMIUS GRAMINUM (Libert) Berk. & Br.

Berk. Outl. Brit. Fungol. 222. 1870

Illustration

Fig.

Pileus 4-7 mm. broad, convex, expanding, "zinc orange," "testaceous," or "ochraceous buff," fading at maturity to "light buff," ^{often} with a darker umbo and a depressed disk, sulcate. Flesh membranous, white; odor and taste mild. Lamellae attached to a ~~more or less distinct~~ collarium (at times indistinct), distant, white, edges even (in No. 20483 the edges at times zinc-orange). Stipe 8-12 (20) mm. x 0.1-0.2 mm., capillary, black or dark brown, apex white, hollow, shining.

Spores (9) 13-17 x 3.5-5 μ , lanceolate, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. (Cheilocystidia in No. 20438 were filamentous, 21-26 x 2 μ .) Epicutis of ellipsoid to cuneate broom-cells 8-14 x 6-8 μ . Stipe hollow; structure like Fig. 1.

Habitat and Distribution. - On stains of dead grass, ^{+ throughout the Southeast,} Glyceria, and Carex, Tennessee, June-July.

Notes on New York Botanical Garden Specimens

Ten packets examined October 4, 1956, and no spores were found in any of them (New York Botanical Garden Herbarium).

Cf. M. subgraminis Murr., Torrey Bul. 67: 151

20438



20438 - Marasmius graminum (Lib.) Fr.
(name? See N.A.F.)

MARASMIUS HELIOMYCES Murrill

Torrey Bot. Club Bul. 67:149. 1940

"Pileus hemispheric to broadly convex, not expanding, gregarious or solitary, 3-4 cm. broad; surface glabrous, much wrinkled radially and furrowed, pale-bay when fresh, becoming grayish on drying; margin entire to undulate or rimose; context membranous, white, unchanging, odorless, mild; lamellae sinuate, broad, triangular, distant, inserted, entire, white, unchanging; microscopic examination not satisfactory; stipe equal, hollow, smooth, glabrous, shining, white to bay, about 5-6 x 0.3-0.5 cm.

"Type collected by West and Murrill on dead hardwood in Planera Hammock, eleven miles northwest of Gainesville, Fla., Aug. 2, 1938 (F 18269). Also collected by E. West on the base of an oak stump at Gainesville, Nov. 1, 1932 (F 9931). A rare species suggesting Heliomyces and related to M. Berteroi (Lév.) Murrill, of tropical America.

Notes on Type (by L. R. Hesler)

Spores 10-12 (13) x 3-4 μ , sub-lanceolate, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae. Stipe hollow; rind not sharply differentiated from cortex, glabrous (Fig. 1).

MARASMIUS HEMISPHERICUS Murrill

Lloydia 9:320. 1946

"Pileus hemispheric, gregarious, 3-4 mm. broad; surface finely pruinose, striate, dull, pale-isabelline, margin entire, paler; context membranous, isabelline, odorless, bitter; lamellae adnate, few inserted, broad, distant, entire, white, unchanging; spores ovoid, smooth, hyaline, scant, about $5 \times 3 \mu$; stipe equal, fistulose, white and finely pubescent at the apex, umbrinous and finely tomentose below, about 2 cm. long and 0.5 mm. or less thick.

"Type collected by W. A. Murrill on open bare ground near short grass in Gainesville, Fla., June 18, 1944 (F 38942)."

Notes on Type (~~by L. R. Hoster~~)

Spores not found. Pleurocystidia and cheilocystidia none. Epicutis of broom-cells. Stipe hollow (Fig. 2).

fading to "tillied buff" but disk remaining "avellaneous,"

MARASMIUS INSITITIUS Fr.

Epicr. Myc. p. 386. 1838

¹⁸
Pileus 6-~~15~~ mm. broad, submembranous, convex, ^{at first "avellaneous" to "vinaceous buff,"} ~~pallid~~ ^{then} ~~buff~~ ^{striate or} to "light buff," plush-like, even. Flesh thin; odor and taste mild. Lamellae adnate, ^{or nearly free,} distant, ~~medium~~ broad, whitish or pallid, finally buff, venose at cap, edges slightly fimbriate. Stipe 15-³⁰~~25~~ mm. x 0.5^{1.0}~~mm.~~ mm., ^{"avellaneous"} ~~brownish~~ downward, pallid upward, short-tomentose, tomentum pale yellowish-brown, hollow ^{or spongy.}

Spores 7-10.5 x 2.5-4.5 μ , pip-shaped to subcylindric, smooth, non-amyloid. Pleurocystidia subfusoid to slightly awl-shaped, 15-25 x 5-6 μ , inconspicuous, projecting slightly or none; cheilocystidia similar. Cuticle of appressed, narrow hyphae. Stipe hollow, cortex colorless, rind brownish, with short yellowish-brown tomentose hairs (Fig. 2).

Habitat and Distribution. - On fallen twigs and leaves of deciduous trees and rhododendron, Tennessee and North Carolina, May-August. ^{caulocystidia.}

Notes on Murrill's Collection

No. 231, from Mountain Lake, Virginia, collected by
W. A. Murrill, July 8-14, 1909

Studied October 5, 1956

Spores 8-9 x 3.5-4.5 μ , subellipsoid, smooth, non-amyloid.
Pleurocystidia and cheilocystidia often scarce, again rather

numerous, buried, inconspicuous, subfusoid, 23-28 x 4-6 μ .

Epicutis of appressed-interwoven hyphae. Stipe hollow (Fig. 2).

My No. 8101 and others seem to agree well with these.

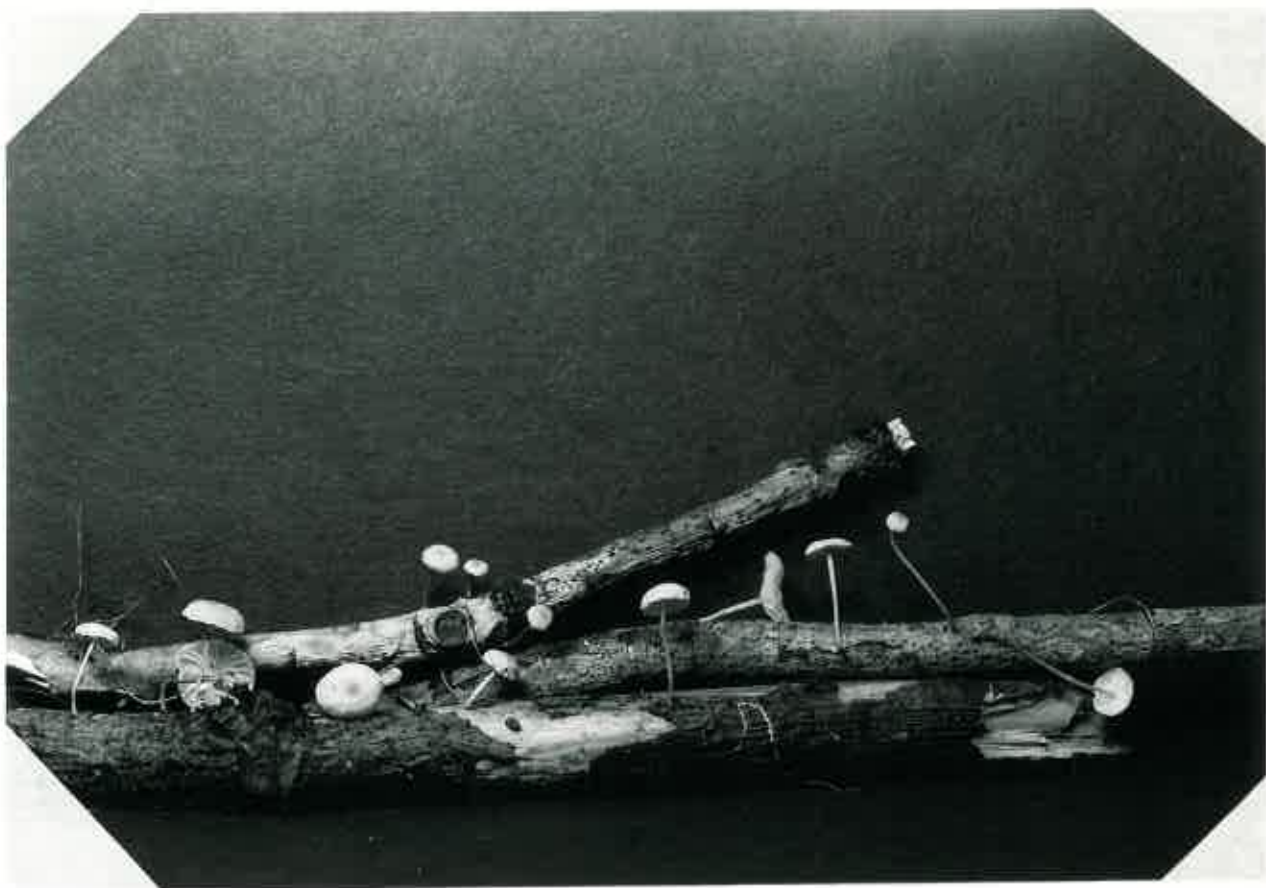
See Mycol. 10:181 for descr., & pl. 8, fig. 9
for color illus.

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Singer [Berk. Nova Hedwigia 44: 315. 1973] suggests that Marasmius
insititius Fr. is a nomen dubium. He also suggests [loc. cit. p. 310]
that M. insititius may be conspecific w/ Marasmiellus opaeus (Berk.
& Curt.) Sing. [Lillem 22: 300. 1949]. Southeastern U.S. material belongs to
M. opaeus.

ANNOTATED BY D. E. DeGid

DATE 11 Jan. 1986



Marasmius involutus Fr.

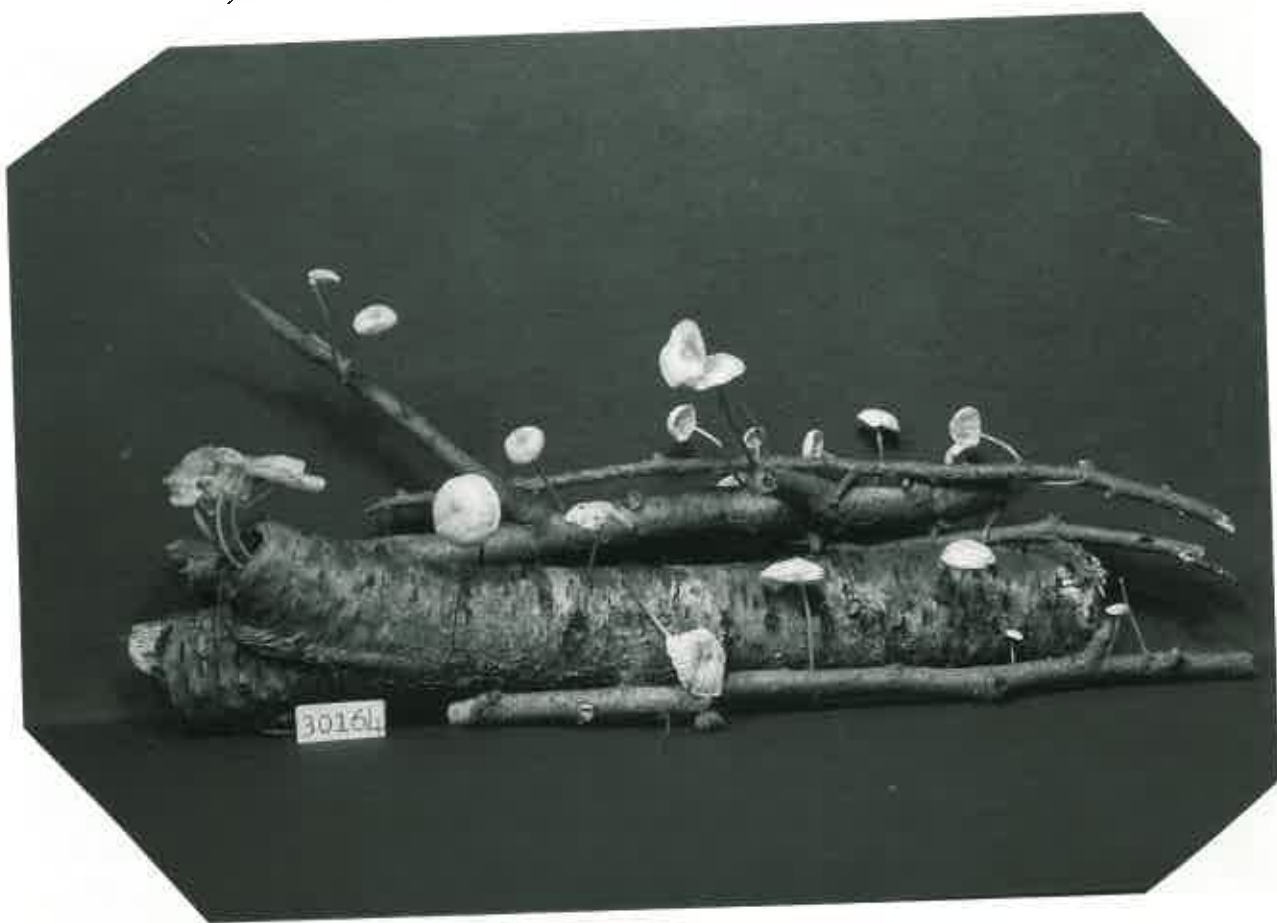
30164

MARASMIUS INSTITUTEUS

PHOTO

On fallen twigs (deciduous), Cades Cove, June 11, 1969

Pileus 8-20 mm, whitish to chalky, disc dingy gray to dark gray, appearing appressed-fibrillose, sulcate to disc. Context membranous, whitish; odor and taste mild. Lamellae adnate, seceding, white, broad, subdistant to distant, edges fimbriate. Stipe 2-3.5 cm long, 0.6-1.0 mm thick, near avellaneous, except apex white at first, then unicolorous, silky, minutely tubular, inserted, base brown.



30164 - *Marasmius incitatus*

MARASMIUS LEPTOPUS Peck

New York State Mus. Bul. 67:25. 1903

(N.A.F. 9:279. 1915)

"Pileus thin, broadly convex or nearly plane, 6-10 mm. broad; surface glabrous, reddish-brown; margin obscurely or rugosely striate: lamellae adnate, close, thin, narrow, white: spores oblong or narrowly ellipsoid, 7.5-9 x 3-4 μ : stipe slender, inserted, hollow, whitish or pallid, glabrous, 2.5-4 cm. long, 1 mm. thick."

Habitat and Distribution. - Fallen leaves, New England to Virginia and west to the Mississippi Valley.

Notes on Type

Type examined July 28, 1956.

Pileus brown, rugulose-striate. Lamellae rather bright yellow. Stipe pruinose (Murrill says glabrous).

Spores 8-10 x 3-4 μ , elongate-pip-shaped, smooth, non-amyloid. Pleurocystidia 18-25 x 3-5 μ , slender clavate-cylindric, occasionally ventricose-appendiculate, cheilocystidia similar. Epicutis of appressed hyphae. Stipe hollow; cortex and rind (Fig. 2); caulocystidia cylindric, tips blunt-rounded, 12-25 x 5-7 μ , at times forked at tips.

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According to Gilliam [Mycotaxon 4(1):132. 1976], Marasmius leptopus Peck is closest to Collybia sect. Subfuneralis. Helling [Mycologia Memoirs 8, 1983] did not test this taxon. Pileus size, stipe insertion & dimensions suggest it is a species of Marasmiellus.

ANNOTATED BY

D. E. D. [Signature]

DATE

11 Jan. 1986

Marasmius lilacinus (Coker + Beards.) Singer

Collybia lilacina Coker + Beards. *Eliza Mitch. Ac. Soc.*
Journ. 37:104. 1921.

Type: North Carolina: Orange Co., Coker 3290 (UNC)
[designated as Lectotype by Halling, Brittonia 35:322
1983]

Additional Material: North Carolina, Orange Co.
Coker 1752, 1818, 2193, 2810, 3288 (all UNC)

TENN 16109 - collected by Merrill, 2 June 1938,
Gainesville, Florida. (TENN)

Marasmius ludovicianus (Murr.) Singer

Collybia ludoviciana (Murr.)

Gymnopus

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= Marasmius cohortalis Berk. according to Singer [Fl.
Neotropica 17: 278, 1976].

= Marasmius cohortalis var. alachuano according to Halling
[Brittonia 35: 320, 1983].

ANNOTATED BY

D. E. Desjardins

DATE

11 Jan. 1986

MARASMIUS MAGNOLIAE Singer

Mycologia 37:435 . 1945

"Pileus deep brown, then "amber brown" with the depressions of the radiately sulcate-rimose margin pale buff, eventually somewhat pallescent and the margin as a whole about "clay color," hairy ursinous when mature, eventually somewhat glabrescent, the non-sulcate disk about 0.5 mm. broad, the extreme margin fimbriate-ciliate at first, hemispheric then convex, flattened at last and becoming subumbilicate, finally with a slight depression in the center in the middle of which there may be a small papilla, up to 5.5 mm. broad.—Lamellae white, subfree, distant, entire and equal, moderately ~~wide~~ broad (1 mm.).—Stipe blackish brown, macroscopically subglabrous but at least partially subfibrillose when seen under a lens, opaque, rarely slightly shining, insidious, more or less flexuous, slightly tapering at the apex, 10-40 x 0.2-0.5 mm.—Context white, whitish, very thin, inodorous.

Microscopical characters: Spores 8.7-9.3 x 3.5-4.3 μ , mostly 8.8-9 x 4-4.2 μ , hyalina, smooth, ellipsoid-fusoid, thin-walled, non-amyloid; basidia 26 x 6 μ ; cystidia none seen; cheilocystidia about 4-7 μ thick, fusoid, acute, hyaline, smooth, entire; hairs of the pileus consisting of chains of short, vesiculose hyphae which are beset with brown, subpyramidal or cylindric spines of 2.5 μ length; among these hairs there are half-attached epicuticular hyphae which have

the shape of ascendant claviculae, arising from each other's lower side, or forming a chain of normal filamentous hyphae, rarely the hairs consisting of smooth members of free, erect hyphae-chains; these individual hyphae in all cases cited about 11-40 x 7-17 μ , the shortest ones e.g. 27 x 23 μ , all thick-walled; hyphae of the context hyaline, non-amyloid, filamentous, with clamp connections."

Habitat and Distribution. - On fallen Magnolia leaves, Florida, May.

Notes on Type (by L. R. Hesler)

Spores 7-10 x 3-4.5 μ , subfusiform to pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia fusoid, 17-20 x 5-6 μ . Epicutis (as Singer describes). Stipe hollow; cortex and rind (Fig. 2), with few, scattered, brownish hyphoid "caulocystidia."

Sect. Hygrometrii

MARASMIUS MINUTISSIMUS Peck

New York State Mus. Ann. Rept. 27:97. ^{1875.}
~~1874~~

(N.A.F. 9:280. 1915)

"Pileus minute, convex or expanded, 0.5-1 mm. broad; surface white, pubescent, with minute, simple or glandular hairs 30 μ long: lamellae few, narrow, often vein-like or almost wanting: spores not found in the type specimens: stipe capillary, minutely pubescent like the pileus, blackish-brown below, pellucid-white above."

Habitat and Distribution. - On fallen leaves, New York and possibly North Carolina.

Notes on Type

Type examined July 28, 1956.

Pileus about 0.1-0.2 mm. broad, white, with fine hairs.

Stipe about 1.0 mm. long, capillary, brownish except the white apex, pubescent, solid.

Spores 3-4 x 2-3 μ , ovoid-ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia not found. Epicutis of globose hymeniform cells, with scattered hairs, 20-40 x 0.5-1.0 μ , tapering to a slender point. Stipe solid, with slender hairs (caulocystidia) (Fig. 4.)

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Gilliam [Mycotaxon 4(1): 133, 1976] considers the holotype to belong to Marasmius epiphyllus (Pers.: Fr.) Fr.

ANNOTATED BY D. E. S. Davis

DATE 11 Jan. 1986

MARASMIUS MINUTUS Pk.

New York State Mus. Ann. Rept. 27:97. 1875

(N.A.F. 9:280)

"Pileus membranous, convex, 2-4 mm. broad; surface glabrous, reddish-brown, sometimes almost vinous-red, margin striate-sulcate: lamellae unequal, distant, subvenous, sometimes branched, white: spores $8 \times 3.5-4 \mu$: stipe capillary, blackish-brown, glabrous, shining, 2.5 cm. long."

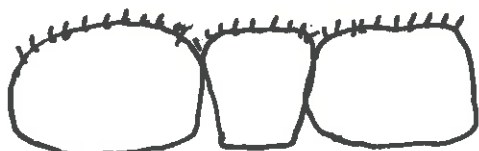
Habitat and Distribution. - On fallen leaves, Virginia; should be found in other southeastern states.

Notes on Type

Type examined August 1, 1956.

Pileus 1 mm. broad, vinous-brown, semi-globose, sulcate, glabrous. Stipe 10-15 mm. \times 0.1-0.2 mm., pale reddish brown.

Spores not found. Pleurocystidia and cheilocystidia similar, slender bottle-shaped to subfusoid, at times subcapitate, $20-28 \times 3-4.5 \mu$. Epicutis composed of "epidermal-like," broom-cells, $7-12 \times 8-13 \mu$: globose, pyriform, ellipsoid, or loaf-shaped, densely spiculose, the spicules about 1μ high. Stipe hollow, as in Fig. 1.



Broom-cells



Pl. + ch.

MARASMIUS NIGRIPES (Schw.) Fr.

Epicr. Myc. p. 383. 1838

Heliomyces nigripes Morgan. Jour. Myc. 12:93. 1896

Pileus 6-20 mm. broad, white, at times tinged blue-green, soon fading to white, convex, expanding-convex to plane, often sub-depressed, pruinose, striate to disk. Flesh white, membranous, soft-waxy; odor and taste mild. Lamellae adnate or subdecurrent, broad, subdistant, white, edges even. Stipe 2-4 cm. x 0.5-1.5 mm., apex white, blackish downward, white-pruinose throughout, interior grayish-black, hollow, tapering downward, inserted.

Spores stellate-angular, 7-9 μ diameter, pseudo-amyloid (reddish-brown in Melzer's reagent), in mass: white with a tint of cream. Gill-trama slightly interwoven. Pleurocystidia and cheilocystidia diverticulate, few on sides, numerous on edges. Epicutis of appressed hyphae with diverticulate cells. Stipe hollow; cortex and rind (as in Fig. 1).

Habitat and Distribution. - On fallen twigs and leaves, in deciduous woods, Tennessee, North Carolina, Louisiana, July-October.

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= Marasmiellus nigripes (Schw.) Sing.
Pop. Michigan Acad. Sci., Arts & Letters 32:130. 1946 (1948)

ANNOTATED BY

D. E. Desjardins

DATE

7 Jan 1986

Marasmius nigrodiscus (Pk.) Halling
Brittonia 35(4): 323. 1983.

Synonym: Collybia nigrodisca Pk.

Annuel Rep. N.Y. State Mus. 50: 98. 1896 (1897)

TYPE: New York; Suffolk Co., Wading River, July; C.H. Peck (NYS)

Gymnopus nigrodiscus (Pk.) Murr.

N. Amer. Flora 9: 356. 1916

Synonym: Gymnopus glatfelteri Murr.

N. Amer. Flora 9: 358. 1916

Collybia glatfelteri (Murr.) Murr.

Mycologia 8: 219. 1916

TYPE: Missouri,
St. Louis, Glatfelter 888
(NYS). Isotype (NY)

Gymnopus tenuifolius Murr.

N. Amer. Flora 9: 358. 1916

Collybia tenuifolia (Murr.) Murr.

Mycologia 8: 219. 1916

Marasmius tenuifolius (Murr.) Sing.

Ann. Mycol. 4: 130. 1943

TYPE: N.Y., Bronx
29 July 1915; W.A.
Murrill (NY)

Collybia delicata Thiers

Mycologia 50: 519. 1958

TYPE: Texas, Bexar Co.,
Wellborn, H.D. Thiers 1684
(MICH)

Collecting at TENN: Great Smoky Mts. Nat. Park, Herbar 10198; 12722; 17089;
17676; 17804; 17995; 18577; 19013; A.H. Smith 7324;
Clayton School, Herbar 17624, 19268
Hampton, Herbar 19190

MARASMIUS NOLANEIFORMIS Murrill

Torrey Bot. Club Bul. 67:149-150. 1940

"Pileus convex to plane with small umbo, gregarious, about 1.5 cm. broad; surface hygrophanous, zonate, avellaneous and striate on the broad margin, umbrinous over the center and avellaneous on the disk, finely fibrillose-squamulose over the entire surface; context membranous, pallid, odorless, taste nutty; lamellae adnexed, broad, rounded behind, inserted, distant, entire, rosy-isabelline; spores ovoid, smooth, hyaline, granular, 7-8 x 4-5 μ ; cystidia none; stipe equal, solid, slightly enlarged at the base, pale-umbrinous or isabelline, finely scurfy, about 3 x 0.1 cm.

"Type collected by W. A. Murrill in an open lawn at Gainesville, Fla., May 31, 1938 (F 18259). Suggesting Nolanea but the spore-print is chalk-white."

Notes by L. R. Hesler, on Type

Spores 7.5-9 (10) x 4-6 μ , ovoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae with numerous tufts of hyphae (forming fibrillose-squamulose scales on pileus). Stipe hollow; cortex and rind (Fig. 2).

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= Crinipellis subtomentosa (Pk.) Sing.

Lilloa 8: 463. 1942.

[see Singh, Fl. Neotropica 17: 16. 1976]

ANNOTATED BY

D. E. Dyer

DATE

11 Jan. 1986

MARASMIUS OCTIFOLIUS Murrill

Lloydia 8:273-274. 1945

"Pileus hemispheric, papillate, gregarious, 2-3 mm. broad; surface pale-bay, sulcate, glabrous, with a small black papillae at the center, margin entire, concolorous; context membranous, pallid; lamellae adnate, broad, entire, white, neither inserted nor interveined, eight in number; spores broadly ellipsoid, smooth, 5-6 x 4 μ ; stipe equal, smooth, glabrous, shining, blackish, capillary, about 1 cm. long.

"Type collected by Dr. G. F. Weber on the leaf-sheaths of dead sugarcane at Gainesville, Fla., Sept. 19, 1942 (F 17859). Suggesting M. minutus, M. Hiorami and certain other small species."

Notes on Type (by L. R. Hesler)

Spores 6.5-8 (9) x 4-5 μ (Murrill says 5-6 x 4 μ), pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of rather small broom-cells. Stipe hollow (Fig. 1).

MARASMIELLUS OLIGOINSULAE Murrill

Torrey Bot. Club Bul. 66:160. 1939

"Pileus membranous, short-stipitate or vertically attached, subcircular or dimidiate, conchate, gregarious, 1-2 cm. broad; surface glabrous, rugulose, striate at times, uniformly isabelline or rosy-isabelline to fulvous, margin entire; context thin, tough, reviving, concolorous, slightly astringent; lamellae few, adnate, broad, distant, inserted, some forked at the base, entire, pale rosy-isabelline; spores ellipsoid, smooth, hyaline, granular, 8-10 x 4-5 μ ; cystidia none; stipe short, curved, eccentric, smooth, glabrous, concolorous to dark-brown or blackish.

"Type collected by West and Murrill on a dead grapevine in Planera Hammock, eleven miles northwest of Gainesville, Fla., July 20, 1938 (F 17944). Also collected on the same host by W. A. Murrill in woods at Gainesville, Sept. 1, 1938 (F 18296). Suggesting Scytinotus concolor (Berk. & Curt.) Murrill, but not resupinate when young, usually provided with a stipe, and not coriaceous."

Notes on Type (by L. R. Hesler)

Spores 7-8 x 4-5 μ , ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe solid, more loosely organized than usual for other Marasmii; cortex and rind not clearly differentiated. Stipe about 4-5 mm. x 1-2 mm. (or shorter).

MARASMIUS OLNEII Berk. & Curt.

Ann. Mag. Nat. Hist. III 4:294. 1859

Pileus 1-2 cm. broad, convex, expanding plane or slightly depressed, edges becoming upturned, "Vandyke brown," paler when young, rough to rugulose, glabrous, margin striate. Flesh thin, pallid or dingy whitish; odor mild, taste acrid. Lamellae joined behind in a collar which becomes free, close becoming nearly subdistant, white, narrow, some forking, some branching, venose at cap, edges even. Stipe 2-5^{cm.}/x 1-2 mm., whitish above, brownish to dark-brown downward, whitish pruinose to tomentose, solid.

Spores 8-11 x 3-4 μ , lanceolate to pip-shaped, smooth, yellowish in Melzer's reagent, pale-cream in mass. Pleurocystidia and cheilocystidia none. Epicutis of appressed, brown hyphae.

Habitat and Distribution. - On dead twigs, Virginia and Tennessee, August-September.

Discussion. - Near M. urens.

Notes on Murrill's Tennessee

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Marasmius olneii Berk. & Curt. belong in sect.
Marasmius according to Gilliam [Mycol. 4(1):116, 1976].
Pileus outside a hyalineform layer of brown cells - stipe white.
The type described by Herk. doesn't appear to fit this description.

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DATE 11 Jan. 1986

Collected by W. A. Murrill, Unaka Springs, Tennessee, August 18-24, 1904. Studied by Hesler October 5, 1956.

Spores 8-9 x 4-5 μ , ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed brown hyphae, at times with erect, scattered, cylindric hyphoid pilocystidia, 23-27 x 4-5 μ . Stipe hollow, tomentose, hairs often aggregated in tufts (Fig. 2).

MARASMIUS OPACUS Berk. & Curt.

Jour. Bot. & Kew Misc. 1:99. 1849

(N.A.F. 9:278. 1915)

"Pileus submembranous, convex, often slightly depressed around a central umbo, 5-8 mm. broad; surface rugulose, scarcely striate, opaque, pulverulent, white: lamellae adnexed, distant, ventricose: spores 6-7 x 3 μ : stipe insititious, elongate, pulverulent, subfurfuraceous, pallid, 2.5-4 cm. long, 1 mm. thick."

Habitat and Distribution. - Fallen leaves and branches, South Carolina and Ohio.

Notes on Routien's Missouri Material

Specimen from Missouri, collected and determined by J. B. Routien (No. 1332), U-T Herb. No. 13290.

Spores 6-8 x 2.5-3 μ , oblong to pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis ^{of interwoven} ~~a loose tangle of~~ hyphae (no broom cells found; Singer, Agar. p. 300 reports them for the group). Stipe hollow (Fig. 2; hyphae very short (stipe is described as pulverulent)).

(more, next page)

Notes on Ravenel's Collection

Ravenel. Fungi Caroliniani Exsiccati, Fasc. 3, No. 6 (New York Botanical Garden Herbarium)

Studied October 5, 1956

Spores subglobose, 6-7 x 5 μ , smooth, non-amyloid.

Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae, no diverticulate (broom) cells found. Stipe hollow (Fig. 2).

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= Marasmiellus opacus (Berk. & Curt.) Sing.
Lilbon 22:300. 1949 (1951).

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11 Jan. 1986

MARASMIUS OREADES Fr.

Epicr. Myc., p. 375. 1838

(N.A.F. 9:271-2. 1915)

"Pileus fleshy, tough, convex, plane or subumbonate, 3-5 cm. broad; surface white to pale-tan or reddish-pallescens, glabrous; margin at first involute, smooth, even, sometimes reflexed in age or in dried plants: context somewhat tough, thick at the disk, whitish, the taste pleasant, the odor fragrant; lamellae white, yellowish when dry, broad, distant, free: spores 7-9 x 4-5 μ : stipe pallid, equal, solid, corticate, with a villous, interwoven cuticle, appearing nearly smooth or slightly villous-pubescent, 4-5 cm. long, 2-4 mm. thick."

Habitat and Distribution. - Grassy places, temperate North America.

Discussion. - No. 8398: Spores 7.5-9 x 4-5 μ , ovoid-subfusoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Smith says cheilocystidia are scattered, cylindric, 26-34 x 3-5 μ . Cuticle cellular, cells rather large, smooth. Stipe differs from others I have studied up till now: solid, central core "sclerenchymatous"; an outer "cortex," loosely organized; "rind" brown, appressed, closely tangled hyphae.

MARASMIUS PALLIDICEPS Murrill

Lloydia 8:272. 1945.

"Pileus convex to plane, gregarious, about 8 mm. broad; surface dry, smooth, glabrous, pallid to isabelline, margin even, entire, straight; context membranous, white, unchanging, odorless; lamellae adnate, inserted, narrow, crowded, entire, pallid to isabelline; spores globose, smooth, hyaline, 1-guttulate, 2-3 μ ; cystidia none; stipe equal, subtomentose, white above, discolored below, about 2 x 0.05 cm.

"Type collected on dead fallen oak leaves, moist and partly shaded, seven miles west of Gainesville, Fla., Sept. 26, 1943 (F 17771). Suggesting M. Olnei but quite distinct."

Notes on Type (by L. R. Hesler)

Spores 5-6 (7) x 2.5-3.0 μ , pip-shaped, smooth, non-amyloid (Murrill says 2-3 μ , globose). Pleurocystidia 18-30 x 3-4 μ , cylindric to subfusiform, usually appendiculate; cheilocystidia similar. Epicutis of appressed hyphae. Stipe hollow; cortex and rind (Fig. 2).

MARASMIUS PERFORANS Fries

Epicr. Myc. p. 385. 1838

Pileus 2-8 mm. broad, convex, finally plane, pallid, rugulose, glabrous, margin even. Flesh thin, pallid; odor foetid, taste slightly unpleasant. Lamellae adnate, subdistant, rather broad, whitish, edges even. Stipe 2-3 cm. x 0.3-0.4 mm., blackish, equal, velvety, hollow.

Spores 6-7.5 x 2-3 μ , subfusoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Pileus surface of appressed, narrow, subparallel hyphae. Trama of pileus and gills unchanged in KOH, reddish-brown in Melzer's reagent. Stipe hollow; cortex colorless, reddish-brown in Melzer's reagent; rind blackish-brown, with numerous erect brown or ^{pallid} hairs, 25-100 x 4-8 μ (Fig. 2).

Habitat and Distribution. - On hemlock and pine needles, North Carolina, July.

Notes on Murrill's Collection

Collected by Murrill and Seaver, Bronx, August 22, 1909.

Studied October 5, 1956

Spores 6-8 (9) x 3-3.5 (4) μ , ellipsoid to pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe hollow (Fig. 2), some hairs aciculate.

= Micromphale perforans (Hoffm.: Fr.) Sing.
Sydowia 2: 32. 1948.

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D. S. G. [Signature]

DATE

11 Jan 1986

MARASMIUS PLICATULUS Pk. (Not the Type)

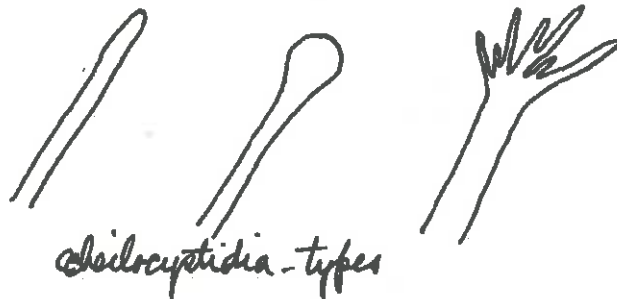
Collected by L. A. Greata, California, November (from
Peck Herbarium)

Studied October 2, 1956

Spores 11-14 x 5-5.5 μ , subovoid, smooth, non-amyloid.

Pleurocystidia none; cheilocystidia of 3 general types:

- (a) cylindric, 20 x 3 μ ; (b) clavate-capitate, 30 x 10 μ ;
(c) diverticulate-stalked, 20 x 7 μ .



Epicutis of brush-cells, closely packed with numerous
bristles. Stipe hollow (Fig. 1).

Known only from western U.S.

MARASMIUS PRAEACUTUS Ellis

Torrey Bot. Club Bul. 6:76. 1876

Pileus 4-12 mm. broad, convex, expanding, disk depressed to sub-umbilicate, pulverulent, white or whitish, at times pinkish, disk often tinged reddish-brown, margin striate. Flesh thin; odor and taste slowly of garlic. Lamellae adnate, close to subdistant, medium broad, forked, white, edges even. Stipe 15-25 mm. x 1-2 mm., reddish-brown, pulverulent, base swollen, contracted to a point below.

Spores 5-7 x 2.5-3 μ , pip-shaped, smooth, white in mass, non-amyloid. Pleurocystidia and cheilocystidia none. Cuticle of pileus of erect or semi-erect hyphae. Stipe hollow, cortex of pale, thick-walled, angular cells; rind of brown, thick-walled cells; surface with hyphoid hairs (Fig. 2).

Habitat and Distribution. - On dead leaves, twigs, and logs, Tennessee, North Carolina, and Florida, July-August.

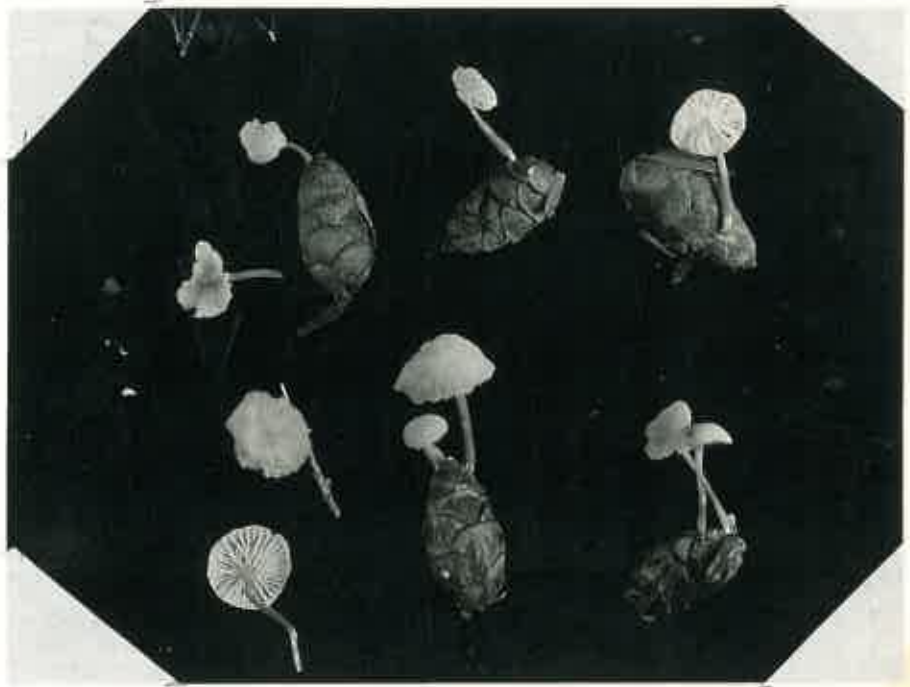
Discussion. - No. 22359 has garlic-taste and rather broad gills.

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= Collybia praeacuta (Ellis) Gilliam
Mycotaxon 4(1): 134. 1976.

ANNOTATED BY D. E. D. D.

DATE 11 Jan. 1986



10812 - *Marasmius procerus* Ellis
(Photo by R.O. Overholts)

MARASMIUS PRASIOSMUS Fr.

Epicr. Myc., p. 376. 1838

Pileus 1-2.5 cm. broad, convex, gregarious, glabrous, pallid, disk at times darker, even. Flesh thin; odor strong of ^{garlic} ~~garlic~~. Lamellae adnate, medium narrow, rather close, white, edges even. Stipe 3-6 cm. x 1-2 mm., pallid to dingy or reddish, tomentose-villose, hollow.

Spores 10-15 x 2.5-3 μ , lanceolate, pointed at one end, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Cuticle of pileus composed of ^{smooth,} cuneate cells, 12-25 x 12-15 μ . Stipe hollow; cortex of pale, thick-walled cells; rind of brown, thick-walled cells, with numerous, brownish, hyphoid "caulocystidia" (Fig. 2).

Habitat and Distribution. - On humus, in deciduous woods, North Carolina, August.

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Known only from Europe. Material from eastern North America is typically Marasmius olivaceus Gilliam. Material from western N.A. is typically Marasmius copelandii Ph.

ANNOTATED BY

D.E. DeBruin

DATE

11 Jan. 1986

MARASMIUS PRUINOSIPES Murrill

Lloydia 8:274. 1945

"Pileus convex, not fully expanding, 6 mm. broad; surface dry, subglabrous, rugose, isabelline, margin deflexed, becoming sulcate; context membranous, white, unchanging, odorless; lamellae decurrent, few, distant, broad, entire, white, unchanging, yellowish when dried; spores globose, smooth, hyaline, about 3 μ ; cystidia none; stipe equal, white, unchanging, pale-umbrinous below, pruinose, much twisted when dry, 2.5 x 0.1 cm.

"Type collected by W. A. Murrill attached to a small dead root on an exposed bank in Gainesville, Fla., July 17, 1938 (F 8346). Suggesting M. pruinosulus Murr., described from Cuba, but differing in color and length of stem."

Notes on Type (by L. R. Hesler)

Spores not found (Murrill says globose, 3 μ).
Pleurocystidia and cheilocystidia subfusoid, not conspicuous, 24-32 x 5-7 μ . Epicutis surface-contour roughened-wavy, with irregular, more or less nodulose-branched ^{diverticulate} ~~boom~~-cells. Stipe solid. Surface with hyphoid caulocystidia some of which are sub-capitate. Cortex and rind (Fig. 4).

MARASMIUS PSEUDOIMPUDICUS Murrill

Lloydia 9:320-321. 1946

Pileus 1-3 cm. broad, convex, expanding, "tawny" to "russet," glabrous but with a velvety appearance, margin even. Flesh thin, pliant, white or faintly brownish; odor and taste mild. Lamellae adnexed, nearly free, crowded, sinuous to crisped, white, drying "zincorange," many short (of 7 ranks), narrow, broadest behind, scarcely reaching margin. Stipe 3-4 cm. x 2-3 mm., whitish, densely white-tomentose-velvety, basal half with cottony envelop, enlarged clavate below, spongy, hollow.

Spores 5-6 (7) x 2.5-3 μ , pip-shaped, non-amyloid, smooth. Pleurocystidia and cheilocystidia none. Epicutis of closely interwoven hyphae. Stipe hollow, type like Fig. 2.

Habitat and Distribution. - On soil, open woods and lawns, Tennessee and Florida, July-August.

Notes on Murrill's Type

Spores 5-6.5 x 2.3-3 μ , pip-shaped, smooth, non-amyloid, white in mass. Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae. Stipe hollow (Fig. 2).

9645

No. 9645
MARASMIUS ~~GLABELLUS~~ *pk. pulcherrimus* PK.~~New York State Mus. Ann. Rept. 26:66. 1874~~

Pileus 1-3 mm. broad, hemispheric, not expanding, pallid or grayish-ochraceous, glabrous, sulcate-striate or plicate. Flesh thin, membranous. Lamellae narrowly adnate, without a collarium, distant, rather narrow, yellowish when dry, edges even. Stipe filiform, 1-2 cm. long, brown, apex white, glabrous, equal, disk-like at base, hollow.

Spores 10-15 x 2.5-5 μ , lanceolate, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Cuticle of pileus of more or less cuneate "broom cells," 12-13 x 7-15 μ . Stipe hollow (Fig. 1).

Habitat and Distribution. - On compost, Tennessee, "

October.

This does ^{not} agree at all with the Type, which is large (2-3 cm.), fleshy; has pl. + ch., and spores 6-8.5 x 2.5-3.5 μ , ellipsoid to subfusoid. of *M. glabellus* PK.

MARASMIUS PULCHERRIPES Peck

New York State Mus. Ann. Rept. 24:77. 1872

(N.A.F. 9:284. 1915)

"Pileus membranous, campanulate, obtuse, 4-8 mm. broad; surface distantly striate, dry, glabrous, soft-maroon or vinous-red: lamellae free, few, distant, ascending, narrow: spores 12-14 x 4 μ : stipe strict, brownish-black, clear-red at the apex, glabrous, shining, 2.5-4 cm. long, 0.5 mm. thick."

Habitat and Distribution. - Sticks and leaves, New York to Virginia.

Notes on Type

Type examined August 1, 1956.

Spores 10-15 x 3.5-5 μ , lanceolate, slightly curved at one (apiculus) end, smooth, non-amyloid. Pleurocystidia fusiform, 28-37 x 4-7 μ ; cheilocystidia of two types: (1) similar to pleurocystidia; (2) broom-cell type, 12-15 x 3-4 μ , with rod-like projections. Epicutis of spatulate-like cells with projections (broom-cells). Stipe hollow, like Fig. 2.



MARASMIUS QUERCUUM Murrill

Lloydia 9:321. 1946

"Pileus convex to saucer-shaped, gregarious, 2-3 cm. broad; surface dry, glabrous, lightly radiate-striate, rosy-isabelline, disk darker, margin splitting with age; context membranous, pallid, odorless, mild; lamellae adnate, inserted, close, narrow, pallid, fimbriate; spores pip-shaped, smooth, hyaline, about $4 \times 2 \mu$; cystidia none; stipe tapering downward, smooth, rosy-isabelline with white pruinosity, about $5 \times 0.1-0.2$ cm.

"Type collected by W. A. Murrill on trash under a laurel oak in Gainesville, Fla., July 23, 1944 (F 38924). Near Mycena marasmius Murr. but distinct."

Notes on Type (by L. R. Hesler)

Spores not found. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe solid; cortex and ring as usual (Fig. 4); Surface with a tangled mat of hyphae.

MARASMIUS RAMEALIS Fries

Epicr. Myc. 381. 1838

Marasmius gregarius PK., Torr. Bot. Club Bul. 23:413. 1896
(N.A.F. 9:279. 1915)

"Pileus subfleshy, plane or depressed, obtuse, 4-9 mm. broad; surface rugulose, opaque, white, the disk with a reddish tint, margin not striate: lamellae adnate, connected behind, subdistant, narrow, white: spores ovoid, apiculate, 8-10 x 3-3.5 μ : stipe short, stuffed, white, reddish below, farinaceous, 12-18 mm. long, 1 mm. thick."

Habitat and Distribution. - On twigs and branches, eastern United States. Peck described M. gregarius from Kentucky.

Notes on Collection from Belgium

Collected by Westondorp & Wallays, Belgium (New York Botanical Garden collection)

Studied October 4, 1956

Spores 8-10 (12) x 2.5-4 μ , subcylindric, sub-pip-shaped, subfusoid, non-amyloid. Pleurocystidia few, buried, inconspicuous, subfusoid, 25-28 x 5-6 μ ; cheilocystidia, when present, diverticulate 22-26 x 5-7 μ . Stipe (Fig. 2). Epicutis of appressed hyphae, no broom-cells.

Kuhner & Rom. say there are cystidia on edges (cheilocystidia) which are frequently claviform or pyriform and irregularly diverticulate-brush cells. Spores 8.5-10.5 x 2.7-4 μ , subcylindric.



Pleurocystidia



Cheilocystidium

7867

Marasmius ramealis Fr. (?)
on small, fallen twigs of hemlock
Cades Cove, June 15, 1957

Pileus 4-10 mm. broad, convex, expanding, whitish, opaque, disk tinged brownish to avellaneous, rugulose, margin deeply furrowed-plicate or striate. Flesh thin, white; odor and taste none. Lamellae adnate, subdistant, medium broad, whitish, finally near "pale olive buff," edges fimbriate. Stipe 3-5 mm. x 0.3-0.5 mm., avellaneous, apex whitish, mealy, equal, solid.

Spores 7-10 x 3-3.5 μ , more or less lanceolate, smooth, non-amyloid (colorless in Melzer's), spore-print failed. Pleurocystidia clavate to fusoid, at times irregular, 24-30 x 4-6 μ ; cheilocystidia cylindric to obclavate, diverticulate, 17-32 x 4-6 μ . Epicutis fibrillose, surface densely diverticulate. Stipe solid, surface cells clavate, many diverticulate.

Determination is tentative. M. ramealis is said not to be striate (Bresadola figures it non-striate).

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= *Marasmiellus ramealis* (Fr.) Sing.

Pap. Michigan Acad. Sci. 32:130. 1946(1948).

ANNOTATED BY

D.E. DePri

DATE

11 Jan. 1986

MARASMIUS RESINOSUS (Pk.) Sacc.

Syll. Fung. 5:522. 1887

Pileus 3-10 mm. broad, white, yellowish when dried, convex, expanded, often depressed, silky to tomentose, glandular, margin even. Flesh thin, pliant; odor and taste mild. Lamellae arcuate-decurrent, subdistant, narrow, white to creamy-white, with resinosus dots, edges discolored and floccose. Stipe 1-4 cm. x 0.5-1.0 mm., white, pubescent, with resinous dots, tough, solid becoming hollow, basal portion white-mycelioid.

Spores 5.5-7 x 3-4 μ , ovoid, smooth, non-amyloid. Pleurocystidia none; cheilocystidia numerous, clavate, 25-40 x 6-9 μ . Epicutis of pileus ^{of} appressed hyphae with pilocystidia. Stipe hollow (Fig. 2); "caulocystidia" clavate-cylindric.

Habitat and Distribution. - On fallen leaves and twigs, often caespitose, Tennessee, North Carolina, and Virginia, June-August.

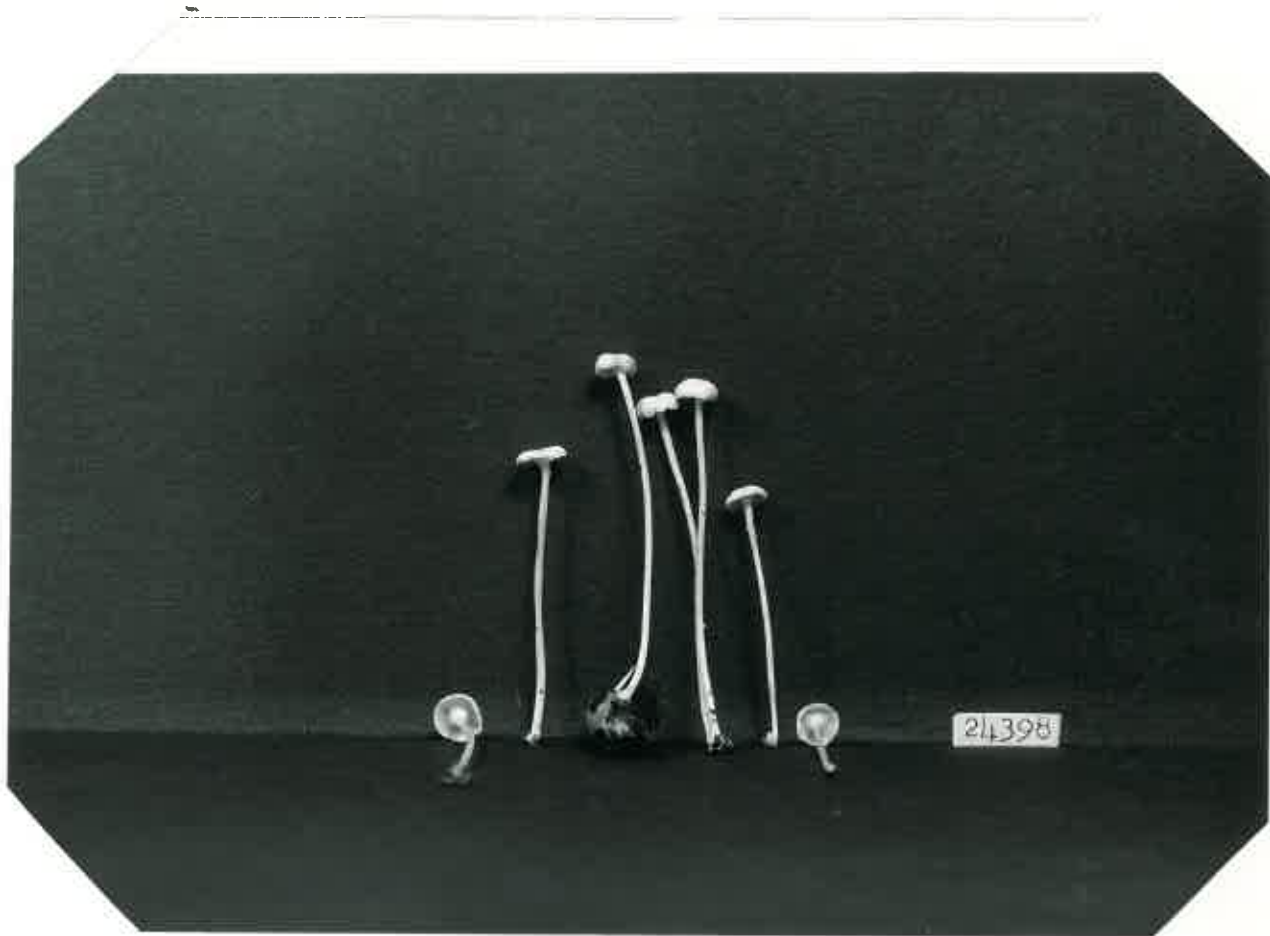
Notes on Type
Examined October 3, 1956

Spores 5-6 x 2.5-3.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia clustered, clavate to subcylindric, 25-40 x 5-8 μ (apex). Stipe hollow (Fig. 2). Epicutis of more or less appressed hyphae with numerous clavate pilocystidia.

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= Resinomyces rhododendri (Pk.) Redhead & Sing.
Mycotaxon 13:152. 1981

ANNOTATED BY D. E. Desj.

DATE 11 Jan. 1986



24398 - *Marasmius resinosus*

MARASMIUS ROTULA Fr.

Epicr. Myc., p. 385. 1838

Pileus 3-12 mm. broad, convex, umbilicate, white, disk at times dark, glabrous, sulcate-plicate. Flesh thin; odor and taste mild or none. Lamellae attached to a free collar behind, broad, distant, white, edges even. Stipe 2-5 cm. x 0.5 mm., apex whitish, elsewhere black or brown, glabrous, shining, tubular.

Spores 6-8 x 3-4 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Smith (p. 308, Mushrooms) says cheilocystidia abundant, saccate, verrucose, 16-22 x 10-18 μ ; pleurocystidia fusoid, difficult to distinguish from basidia (and may be same as basidia, i.e. do not occur). Epicutis of pileus of loaf-shaped broom-cells, 17-20 x 10-16 μ . Stipe hollow; cortex and rind as usual (Fig. 1).

Habitat and Distribution. - On leaves, twigs, sticks, wood, Tennessee, North Carolina, and Alabama, May-August.



18995 - *Marasmius rotula* Fr.

(Pileus surface with broom-cells)

MARASMIUS RUBROPHYLLUS Pennington

North American Flora 9:271. 1915

"Pileus subfleshy, tough, broadly convex to nearly plane, often slightly depressed, gregarious, 1-4 cm. broad; surface dry, smooth, reddish-brown to dark-alutaceous, margin even: lamellae adnexed or adnate, moderately close, narrow, reddish, becoming reddish-brown in dried plants: spores $7 \times 3.5 \mu$: stipe firm, even, short, reddish-brown, uniformly covered with a white down or pruinose coat, 2-3 cm. long, 1-2.5 mm. thick."

Habitat and Distribution. - On bark, dead leaves, and dead twigs in woods, temperate North America, east of the Mississippi River.

Notes on Clark's Material

Specimen from New York Botanical Garden, collected by E. D. Clark, Cold Spring Harbor, July 25-August 8, 1911. (Unknown whether named by Pennington.)

Examined September 3, 1956.

Spores $5.5-7.5 \times 2.5-3 \mu$, pip-shaped, smooth, non-amyloid.

Pleurocystidia and cheilocystidia none. Epicutis of

appressed hyphae. ~~Epicutis~~

Stipe hollow (Fig. 2).

Type not at NY
suggests the type

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= Collybia submunda (Ellis:Pk) Gilliam; Mycotaxa 4:136. 1976.
according to Gilliam [loc. cit. 135] and Halling [Mycologia Memoirs 8:69. 1983]

ANNOTATED BY

D.E. Ditz

DATE

11 Jan. 1986

MARASMIUS SCORODONIUS Fr.

Epicr. Myc. p. 379. 1838

Marasmius alliatus (Schaeff.) Schröt. Krypt.-Fl. Schles. 3¹:
559. 1889

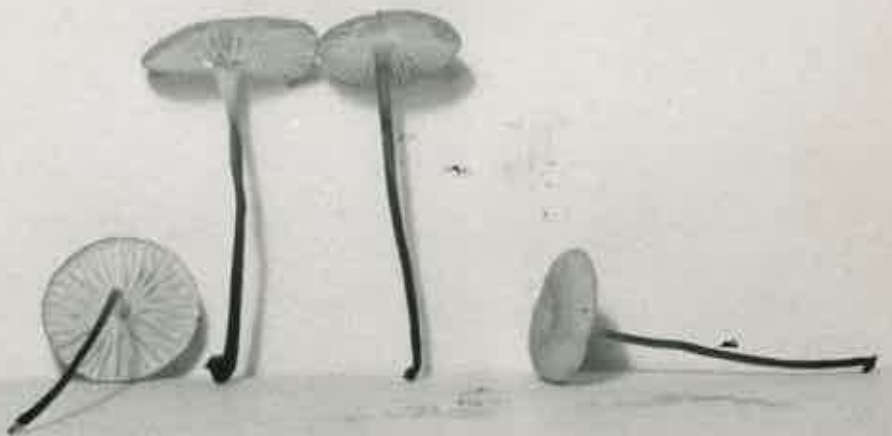
Pileus 8-20 mm. broad, convex, expanding, depressed and rugose on disk, plush-like but glabrous, "cinnamon" fading to "pinkish buff," neither viscid nor hygrophanous, margin even or somewhat striate. Flesh very thin, pliant, white; odor and taste of garlic. Lamellae free or barely reaching the stipe, white, of about 4 ranks, medium broad, ventricose, almost close, edges serrulate. Stipe 2-6 cm. x 0.3-1 mm., white above, reddish brown and tapering downward, the very base blackish, glabrous, somewhat shining, dry, hollow, base naked and with a small disk.

Spores ovoidal-lanceolate, smooth, (7) 8-10 (12) x 3-4.5 (5.5) μ . Pleurocystidia none; cheilocystidia few, slender, clavate, 18-40 x 3-5 μ . Cuticle of pileus composed of smooth, globose to pyriform cells, 18-25 x 4-12 μ , more or less brownish in color. Stipe hollow; cortex and rind as usual (Fig. 1).

Habitat and Distribution. - On soil and needles, in pine woods, Tennessee and North Carolina, May-August.

Discussion. - Most authors give the spores 6-8 x 3-4 μ ; otherwise our collections agree with descriptions of M. scorodoni. Pennington gives spores of M. prasmiosmus Fr. 12-15 x 3-4 μ (N.A.F. 9:269). Possibly M. alliatus or alliaceus is involved here.

20872



20872 - *Marasmius scorodonium* Fr.

MARASMIUS SETULOSUS Murrill

Torrey Bot. Club Bul. 67:150. 1940

"Pileus convex with broad umbo, gregarious, 1-2 cm. broad; surface smooth, finely hispid, fulvous, darker on the umbo, margin even, entire; context subfleshy, thin, white, odorless, mild to slightly astringent; lamellae adnexed, rounded behind, medium broad, medium distant, inserted, entire, fulvous, unchanging; spores pip-shaped, smooth, hyaline, 1-guttulate, 10-12 x 4-4.5 μ ; cystidia abundant, pointed, ventricose, hyaline, 45-75 x 5-8 μ ; stipe equal, smooth, finely hispid, pallid above, bay below, 3-4 x 0.15-0.2 cm.

"Type collected by West and Murrill in trash under an oak at Arredonda, Fla., July 29, 1938 (F 18267). Also collected by West and Murrill under hardwood trees at Kelley's Hammock, ten miles northwest of Gainesville, Fla., Aug. 3, 1938 (F 18271). Suggesting M. glabellus Peck but densely covered with fine, straight, sharp, hyaline bristles, while the gills also bristle with long, pointed cystidia. One of the most bristly fungi I ever met."

Notes on Type (by L. R. Hesler)

Spores (5) 6-8 x (2.5) 3-4 μ (Murrill says 10-12 x 4-4.5 μ), pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia aculeate-ventricose, brown, 51-76 x 7-8 μ (at base), numerous, conspicuous. Epicutis of broom-cells, with

numerous pilocystidia (similar to pleurocystidia). Stipe hollow; cortex and rind as in Fig. 2. Surface with caulocystidia (similar to pilocystidia).

The cystidia are strikingly like those of M. cohaerens (A. & S.) Quél. It differs from M. cohaerens in its even pileus-margin, mild odor and mild to astringent taste, lack of purplish-brown gill-edges, more slender stipe, and slightly smaller spores.

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According to Singer [Fl. Neotropica 17: 247. 1976], M. setulosus Murr. is a synonym of Marasmius cohaerens (Pers.: Fr.) Cooke & Quél.

Gilliam [Mycotaxon 4(1): 68. 1976] disagrees w/ Singer. She believes the holotype of M. setulosus is not conspecific w/ M. cohaerens.

ANNOTATED BY

D.S. Dizon

DATE

11 Jan. 1986

MARASMIUS SICCIFORMIS Murrill

Torrey Bot. Club Bul. 67:150-151. 1940

"Pileus conic, solitary, 1 cm. broad; surface striate-sulcate, glabrous, pale-vinose, darker on the umbo, margin entire; context membranous; lamellae adnate, inserted, broad, medium distant, white, entire; spores broadly ellipsoid, smooth, hyaline, about $8 \times 5 \mu$; cystidia few, pointed, tapering from a rather thick base, smooth, hyaline, projecting about 80μ ; stipe equal, smooth, glabrous, shining, subconcolorous, hollow, 3 cm. long and less than 1 mm. thick.

"Type collected by W. A. Murrill on the ground, probably attached to buried wood, at Gainesville, Fla., April 8, 1938 (F 16179). A rare species, beautiful in shape and color, with long, pointed cystidia."

Notes on Type (by L. R. Hesler)

Spores 7-9 (10) \times 5-6 μ , ellipsoid, smooth, non-amyloid. Pleurocystidia 20-37 \times 6-7 μ , clavate; cheilocystidia 20 \times 6 μ , clavate \times (Murrill says "pointed, ... projecting about 80 μ "). Epicutis a palisade of smooth, brick-shaped to cuneate cells. Stipe hollow (Fig. 1).

MARASMIUS SICCUS (Schw.) Fr.

Epier. Myc., p. 382. 1838.

Agaricus siccus Schw. Schr. Nat. Ges. Leipzig 1: 84. 1822.

Pileus 1-4 cm. broad, cylindric-convex when young, finally campanulate, dry, glabrous, "burnt sienna" when young, finally fading to "orange rufous" or "cinnamon rufous," distantly radiate-sulcate to disk. Flesh membranous, white. Lamellae free or nearly so, round and narrowed behind, broad toward front, distant, white, edges even, venose at cap. Stipe 4-10 cm. x 0.5-1.0 mm., glabrous, horny, shining, brownish to black below, white above, tubular, white-mycelioid at base.

Spores (12) 15-18 x 3-4 μ , lanceolate-oblong, pointed at one end, smooth, non-amyloid, Pleurocystidia none; cheilocystidia clavate, 20-32 x 4-5 μ . Epicutis of pileus of vesiculose broom-cells. Stipe hollow; like Fig. 2 but hairs very short and few.

white \$ in mass.

Habitat and Distribution. - On humus, in deciduous and mixed woods, Tennessee, North Carolina, South Carolina, and Florida, June-August.

21497 - *Marasmius siccus* (Achw.) Fr.

MARASMIUS SPONGIOSUS Berk. & Curt.

Berk. Jour. Bot. & Kew Misc. 1:100. 1849

Marasmius semihirtipes Pk. Buffalo Soc. Nat. Sci. Bul.
1:57. 1873

Collybia spongiosa (B. & C.) Singer. Agar. p. 201. 1949 .

Pileus 1-3 cm. broad, convex, expanding plane, "saya1 brown" when young, then pallid-brownish to whitish fuscous or pinkish-buff, drying "cinnamon buff," disk at times darker, margin even or sub-plicate. Flesh thin; odor mild, taste mild or fungoid. Lamellae adnate to adnexed, close or nearly subdistant, medium broad, white, edges even. Stipe 3-5 cm. x 1-2 mm. (apex) x 2-3 mm. (base), equal or the base spongy-thickened, reddish to brownish or nearly black, often "hazel" to "Hessian brown," tomentose below, hairs often yellowish-brown, pulverulent above, hollow, at times rooting.

Spores 6-8 x (2.5) 3-4.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of pileus of appressed hyphae. Stipe hollow (Fig. 2).

Habitat and Distribution. - On humus, Tennessee, North Carolina, Florida, and Louisiana, April-August and December.

Discussion. - Singer says this is a Collybia (C. spongiosa (B. & C.) Sing. = M. semihirtipes Pk.).

Notes on Type of M. semihirtipes Pk.

Type studied August 1, 1956.

Spores 7-9 x 3-4.5 μ , pip-shaped, smooth, non-amyloid.

Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe hollow (Fig. 2).

Notes on Long Island Collection of M. spongiosus B. & C.

Collected by Roy Latham, named by Peck (?), Orient Point, L. I., September 11, 1911

Studied October 3, 1956

Spores 7-8 x 3-4 μ , pip-shaped, smooth, non-amyloid.

Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe (a) sections at middle: hollow (Fig. 2); sections at spongy base: similar to (a), but the inner cortex is more loosely organized, and some hyphae extend more or less radially and/or tangentially rather than vertically.

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= Collybia spongiosa (Berk. & Curt.) Singer
Lilwa 22: 201. 1949 (1951).

ANNOTATED BY D. E. Day

DATE 10 Jan. 1986



21858 - *Marasmius spongiosus* B. & C.



21318 - *Marasmius spongiosus* B. & C.
14182,
(Same as Nos. 17541, 21365, 21366)

MARASMIUS STENOPHYLLOIDES Murrill

Lloydia 8:274-275. 1945

"Pileus convex, not fully expanding, umbonate, gregarious, 1.5 cm. broad; surface dry, milk-white, nearly smooth, minutely tomentose, margin incurved, even, lobed; context thin, white, unchanging, odorless; lamellae adnate or slightly decurrent, arcuate, inserted, forked, narrow, rather distant, notched, white, yellowish when dry; spores globose, smooth, hyaline, about $4\ \mu$; stipe equal, smooth, white, minutely tomentose, with a white mycelial disk at the base, 1×0.12 cm.

"Type collected by W. A. Murrill on a fallen frondose stick in dry woods in Gainesville, Fla., Sept. 6, 1939 (F-9920). Suggesting M. substenophyllus Murr., but tomentose with adnate, forked gills."

Notes on Type (by L. R. Hesler)

Spores $6-7 \times 3-4.5\ \mu$ (Murrill says globose, $4\ \mu$), pip-shaped, smooth, non-amyloid, abundant. Pleurocystidia prominent, projecting, clavate, often more or less collapsing, $48-64 \times 8-10\ \mu$; cheilocystidia similar, $25-37 \times 5-7\ \mu$. Epicutis interwoven, with numerous, more or less erect hyphae. Stipe hollow; cortex and rind (Fig. 2).

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Not a species of Marasmius: pileus entirely wrong.
Probably not a species of Marasmiellus: stipe is not imbricate.
Possibly a species of Hemimyces.

ANNOTATED BY D. S. J. J. J.

DATE 10 Jan. 1986

This is not
Marasmiellus stenophyllus
(Dennis) Dennis
Fungi of Venezuela: 31. 1970.

MARASMIUS STENOPHYLLUS Mont.

Ann. Sci. Nat. IV:1:116. 1854

(N.A.F. 9:262)

"Pileus thin, soft, fleshy, but tough and persistent, convex to irregularly expanded, umbilicate, becoming eccentric with age, gregarious to cespitose, 1-4 cm. broad; surface minutely fibrillose to glabrous, radiate-rugose, hygrophanous, pale-yellowish-white to pale-reddish-tan, margin concolorous, incurved when young: lamellae adnate with a slight collar, rarely short-decurrent, rather distant, broad, inserted, the long ones ventricose, white, interveined, often forking: spores ellipsoid, smooth, hyaline, about $7-9 \times 5-6 \mu$: stipe tough, cylindric, tapering upward, usually curved, glabrous, white at the apex, pale-reddish below, whitish-mycelioid at the base, solid or spongy, at first central, often strongly eccentric with age, 1-4 cm. long, 1-2 mm. thick."

Habitat and Distribution. - On banana trash, Florida.

Notes on Murrill's Jamaica Collection

No. 141: Collected by W. A. Murrill, December 16, 1908
Studied October 8, 1956

Spores $9-12 \times 5-6.5 \mu$, ellipsoid, smooth, non-amyloid (or faintly reddish-brown in Melzer's). Pleurocystidia none; cheilocystidia diverticulate cells, $16-20 \times 5-6 \mu$. Epicutis of appressed hyphae; no broom cells.

= Marasmiellus stenophyllus (Mont.) Sing.
Sydowia 15: 58. 1962

ANNOTATED BY

D. S. Delfino

DATE

10 Jan. 1986

MARASMIUS SUBALBICEPS Murrill

Lloydia 9:321. 1946

"Pileus convex to expanded, gregarious, 5-8 mm. broad; surface glabrous, white, sulcate, disk rosy-isabelline, slightly umbilicate, margin very thin, entire; context membranous, white, odorless, mild; lamellae adnexed, rounded behind, inserted, distant, broad, ventricose, entire, white; spores pip-shaped, smooth, about $5 \times 3 \mu$; stipe equal, capillary, pruinose, white above, fuliginous to blackish below, about 1 cm. long.

"Type collected on dead leaves under a laurel oak at Gainesville, Fla., July 2, 1944 (F 38916). Suggesting M. albiceps Pk. Rare in the vicinity."

Notes on Type (by L. R. Hesler)

Spores $6-7 \times 2.5-3 \mu$, pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of closely appressed hyphae. Stipe hollow (Fig. 2).

MARASMIUS SUBARCHYROPUS Murrill

Torrey Bot. Club Bul. 67:151. 1940

"Pileus convex to plane or depressed, gregarious, 4-6 cm. broad; surface smooth, glabrous, pallid, pale-yellowish when dry; context subfleshy, white, odorless; lamellae adnexed, or adnate with a decurrent tooth, very crowded, very narrow, inserted, entire, white; spores ellipsoid, smooth, hyaline, 5-6 x 3-4 μ ; cystidia none; stipe equal, ridged at the apex, pallid, pruinose to subglabrous, 6-9 x 0.4-0.8 cm.

"Type collected by West and Murrill on much-decayed hardwood in Planera Hammock, eleven miles northwest of Gainesville, Fla., July 20, 1939 (F 18264). Resembling M. archyropus (Pers.) Fries, but much larger, and with different spores."

Notes on Type (by L. R. Hesler)

Spores 5.5-6.5 x 3-3.7 μ , ellipsoid to subovoid, smooth, non-amyloid (most abundant on pilei not fully expanded).

Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae. Stipe hollow, with scattered caulocystidia which are cylindric to sub-bottle-shaped.

MARASMIUS SUBGRAMINIS Murrill

Torrey Bot. Club Bul. 67:151-152. 1940

"Pileus membranous, convex to very slightly depressed, neither umbonate, nor umbilicate, densely gregarious to cespitose, 4-8 mm. broad; surface dry, glabrous, not shining, white or slightly stramineous, margin undulate, sometimes rimose, slightly sulcate with age, deflexed on drying; context very thin, white, odor agreeable, taste slightly astringent; lamellae squarely adnate, without a collar, plane, rather broad, distant, slightly interveined, several times inserted, entire on the edges, pallid to isabelline; spores pip-shaped, smooth, hyaline, not consistently guttulate, about 7-9 x 3-4 μ ; stipe lumpy, usually much enlarged and finely striate at the apex, white above and slightly rosy-avellaneous below, glabrous, 5-10 x 0.5-1 mm.

"Type collected by Dr. George F. Weber on dead centipede grass on his lawn in Gainesville, Fla., Oct. 5, 1938 (F 18361). Related to M. graminis Murrill, which was discovered on dead Bermuda grass on lawns in Cuba. The spores were found and studied by Dr. Weber after fruitless efforts on my part. The photograph reproduced herewith was taken by him."

Notes on Type (by L. R. Hesler)

Spores 6-8 x 3-4 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia and cheilocystidia none. Epicutis a tangle of

more or less erect, colorless hyphae. Stipe solid; rind not sharply differentiated from cortex; surface with a few scattered, erect hyphae ("caulocystidia").

Singer says this is a synonym of M. dealbatus B. & C. (= M. synodicus).

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= Marasmiellus subgraminis (Murr.) Sing.

Beih. Nova Hedwigia 44: 36. 1973

Distinct from Marasmiellus dealbatus (Berk. & Curt.) Sing. Sydowia 9: 391. 1955.
and from Marasmiellus synodicus (Kunze apud Fr.) Sing. Sydowia 9: 390. 1955

ANNOTATED BY D. E. Degen

DATE 10 Jan. 1986

MARASMIUS SUBNIGRICANS Murrill

Torrey Bot. Club Bul. 67:152-153. 1940

"Pileus campanulate to broadly convex, often umbonate, gregarious, 1.5-3 cm. broad; surface smooth or rugose, glabrous, pure-white, usually becoming partly or wholly blackish on drying; margin entire to undulate, even or sulcate-striate; context membranous, white, changing to blackish, odorless, mild; lamellae squarely adnate, narrow, distant, inserted, interveined, entire, white, becoming blackish; spores narrowly pip-shaped, smooth, hyaline, 8-10 x 3-4 μ ; cystidia abundant, bottle-shaped, usually abruptly pointed, hyaline, projecting about 30 x 10-15 μ ; stipe equal, smooth, glabrous, white, unchanging or darkening slightly when dried, about 3-4 x 0.2-0.3 cm.

"Type collected by W. A. Murrill on hardwood sticks in a high hammock at Gainesville, Fla., July 1, 1938 (F 17358). Very common about Gainesville on fallen hardwood sticks, especially on oak (F 17359, F 16324, F 9925, F 9937, F 9938). Rather surprising in its change from pure-white to almost black. M. nigripes (Schw.) Fries is described as having angular spores and a black, horny stem."

Notes on Type (by L. R. Hesler)

Spores 8-10 x 4-5 μ , pip-shaped, smooth, non-amyloid.
Pleurocystidia ventricose to cylindric-bottle-shaped, projecting

prominently, 56-78 x 6-8 μ . Cheilocystidia clavate,
43-54 x 3-5 μ . Epicutis interwoven with numerous hyphae
semi-erect. Stipe hollow (Fig. 2, few hyphoid caulocystidia).

THE UNIVERSITY OF TENNESSEE

= Marasmiellus subnigricans (Murr.) Sing.
Beih. Nova Hedwigia 44: 26. 1973.

ANNOTATED BY D. E. Dalen
DATE 10 Jan. 1986

MARASMIUS SUBNUDUS (Ellis) Pk.

New York State Mus. Ann. Rept. 51:287. 1898

(N.A.F. 9:271)

"Pileus subfleshy, thin, tough, flexuous, broadly convex to plane, gregarious or subcespitose, 2-4 cm. broad; surface brownish-red, dingy-bay, or russet, smooth, margin even, smooth or substriate: context thin, tough, white, the taste unpleasant, bitter; lamellae pallid or yellowish, becoming darker in dried plants, narrow, subdistant, slightly adnexed or free, becoming remote in old, dried plants: spores 8-10 x 4.5 μ : stipe reddish-brown to nearly black, covered with a dense, white tomentum or nearly naked at the apex, slender, firm, equal, solid or stuffed, 4-8 cm. long, 2-4 mm. thick."

Habitat and Distribution. - (Not reported from Southeast)

Notes on Authentic Material (Type?)

On August 1, 1956, I examined the following (which was borrowed from Albany):

Ellis. North American Fungi

909. Marasmius peronatus, Bolt. var. subnudus.

Newfield, New Jersey, September to October. 1882

Spores: none found. Pleurocystidia and cheilocystidia none. Epicutis of interwoven, more or less appressed hyphae.

Stipe hollow (Fig. 2).

THE UNIVERSITY OF TENNESSEE

= Collybia subnuda (Ellis: Pk) Gilliam
Mycotaxon 4(1): 136. 1976

ANNOTATED BY

D.E. Dierke

DATE

10 Jan. 1986

MARASMIUS SUBPRASIOSMUS Murrill

Torrey Bot. Club Bul. 67:153. 1940

"Pileus convex to subexpanded, slightly umbilicate at times, gregarious to subcespitose, 2-3 cm. broad; surface glabrous, radiate-sulcate, cremeous with a fulvous tint, the disk pale-fulvous; context tough, membranous, odor slight but distinctly alliaceous, taste mucilaginous and alliaceous; lamellae adnexed, narrow, unequal, distant, entire, white; spores subfusiform, smooth, hyaline, about $5 \times 2.5 \mu$; cystidia none; stipe enlarged below, smooth, pruinose, white, about 3-4 x 0.2 cm.

"Type collected by W. A. Murrill on a lawn in Gainesville, Fla., May 31, 1938 (F 18362). Strongly suggestive of M. prasiosmus Fries in some of its characters."

Notes on Type (by L. R. Hesler)

Spores 5-6.0 x 2.5-3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe hollow; rind not strongly differentiated from cortex (Fig. 2), with short, hyphoid "caulocystidia."

No onion taste (dried material).

Singer says this is a Collybia (Sydowia IX: 372. 1955).

MARASMIUS SUBSTENOPHYLLUS Murrill

Torrey Bot. Club Bul. 67:153-154. 1940

"Pileus convex to subexpanded, gregarious, 1.5-2.5 cm. broad; surface dry, smooth, white, glabrous, margin even, entire; context subfleshy, thin, white, odorless, slightly bitter; lamellae decurrent, inserted, distant, rather narrow, entire, white; spores copious, ellipsoid, smooth, hyaline, 1-guttulate, about $6 \times 4 \mu$; cystidia abundant, smooth, hyaline, usually clavate, projecting $20-45 \times 6-8 \mu$; stipe subequal, smooth, white, glabrous, with a white disk at the base, about $1.5-3 \times 0.2-0.3$ cm.

"Type collected by West, Arnold and Murrill on dead hardwood in Planera Hammock, eleven miles northwest of Gainesville, Fla., July 21, 1938 (F 18268). Also collected by West and Murrill in Sanchez Hammock, July 23, 1938 (F 18272, F 18276). Reminding one of the common tropical species, M. stenophyllus, but thicker, more fleshy, and white throughout."

Notes on Type (by L. R. Hesler)

Spores $6-7 \times 3.5-4.5 \mu$, ellipsoid, smooth, non-amyloid. Pleurocystidia $42-54 \times 5-7 \mu$, projecting $25-30 \mu$, cylindric to clavate, conspicuous, numerous; cheilocystidia similar. Epicutis of appressed hyphae. Stipe hollow, with few short hyphoid "caulocystidia"; cortex and rind (Fig. 2).

MARASMIUS SUBSYNODICUS Murrill

Torrey Bot. Club Bul. 67:154. 1940

"Pileus membranous, convex to plane or slightly depressed, gregarious to subcespitose, 5-7 mm. broad; surface smooth, finely pulverulent under a lens, pale-isabelline to white, margin entire, even; context very thin, white, mild, odorless; lamellae adnate with a slight decurrent tooth, broad, distant, inserted, white, stramineous when dry, entire; spores few, oblong-ovoid, smooth, hyaline, about $4-5 \times 2 \mu$; stipe equal, smooth, finely fibrillose, white above, pallid with a rosy tint below, $5-10 \times 0.5$ mm.

"Type collected by W. A. Murrill on chips and sticks in a pine grove at Gainesville, Fla., Oct. 21, 1932 (F 9932). Also collected by Dr. G. F. Weber on dead grass on a lawn in Gainesville, Oct. 2, 1938 (F 18356). Related to M. synodicus (Kunze) Fries. It is a small white species, densely gregarious and plentiful."

Notes on Type (by L. R. Hesler)

Spores $4-6$ (7) \times $2-2.5$ (3) μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae, many of which are more or less erect. Stipe solid, with a surface tangle of hyphae; cortex and rind (Fig. 4).

THE UNIVERSITY OF TENNESSEE

= Marasmiellus stenophyllus (Mont.) Sing.
Synonym 15:58. 1962.

Distinct from Marasmiellus mirisus (Berk.) Sing. [Nova Hedwigia 44:104. 1973] K.
and its synonym Marasmius epileucus Berk.

ANNOTATED BY D. G. Desj.

DATE 11 Jan. 1986

Singer says F
M. epileucus Berk

MARASMIUS SUPERABUNDANS Murrill

Fla. Acad. Sci. Jour. 8:180. 1945

"Pileus convex to subexpanded or plane, often umbonate, gregarious, 3-4 cm. broad; surface dry, smooth, glabrous, isabelline or fulvous, frequently pallid at the center, margin even, entire, slightly striate with age; context membranous, white or discolored, odorless, mild; lamellae adnexed, narrow, usually close, pallid, minutely notched; spores pip-shaped, smooth, hyaline, about $7 \times 4 \mu$; cystidia none; stipe equal or subequal, hollow, isabelline, white-pruinose when young, 4-6 x 0.2-0.4 cm.

"Type collected by W. A. Murrill on an open grassy lawn in Gainesville, Fla., Aug. 11, 1944 (F 32713). Very abundant on lawns in the vicinity during summer rains. Near M. domesticus Murrill."

Notes on Type (by L. R. Hesler

Spores 7-8 (9) x 3.5-4.5 μ , pip-shaped, smooth, "ochraceous buff" in mass, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Epicutis of appressed, more or less parallel hyphae. At times, the epicutis is torn away in sectioning, leaving a sub-epicuticular region of erect, narrow, parallel hyphae. Stipe hollow; cortex and rind with scattered "caulocystidia" or erect hyphae on surface (Figs. ~~1~~ and 2).

MARASMIUS TAGETICOLOR Berk.

Jour. Bot. & Kew Misc. 8:136. 1856

Marasmius atropurpureus Murr. N. A. Flora 9:262. 1915

Fileus 4-10 mm. broad, hemispheric then campanulate, plicate to disk, glabrous, velvety under lens, "maroon" to "garnet brown," margin even, except for plications. Flesh membranous, dingy-brownish, odor and taste slight or none. Lamellae adnate to a collar, distant, about 12 reaching the collar, narrow to medium broad, whitish, then pale brown, edges "maroon." Stipe 1.5-2 cm. x 0.2-0.5 mm., filiform, usually tinged maroon, paler at apex and below, glabrous, hollow.

Spores 15-19 x 3.5-4.5 μ , lanceolate, curved, smooth, non-amyloid. Pleurocystidia clavate-fusoid, 35-50 x 7-10 μ ; cheilocystidia of two types: (a) diverticulate, 9-14 x 4-7 μ , numerous, (b) slender-ventricose to clavate, at times nodulose, 30-51 x 7-12 μ , sometimes absent. Epicutis of loaf-shaped broom-cells. Stipe hollow (Fig. 1).

Habitat and Distribution. - On trash, cow-dung, Louisiana and Florida, September-November.

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Marasmius tageticolor Berk. and Marasmius atropurpureus Murr.
are not synonymous. M. atropurpureus is a synonym of
Marasmius haematoccephalus (Mont.) Fr. according to Singer,
Fl. Neotropica 17: 210, 1976.

ANNOTATED BY

D. E. Delfino

DATE

11 Jan. 1986

Notes on the Type of *M. atropurpureus* Murr.

Type examined August 31, 1956.

Spores none found (Murrill, N.A.F. 9:262, does not mention spores). Pleurocystidia 20-25 x 6-7 μ , ventricose, scattered; cheilocystidia 16-20 x 6-7 μ , clavate, clustered. Epicutis of broom-cells, 6-8 x 6-8 μ , "bristles" about 5 μ long. Stipe hollow, smooth (Fig. 1).

Notes on Florida and Bahama Collections of *M. atropurpureus*

Studied October 4, 1956

(1) No. 6126, Exploration of the Everglade Keys, Florida, collectors J. K. Small, C. A. Mosier, G. K. Small, July 10, 1915.

Spores none found.

(1) No. 6094, same, June 24, 1915.

Spores 13-18 x 3-4 μ , lanceolate, smooth, non-amyloid.

(3) Exploration of the Bahamas, E. G. Britton, September 8, 1904. Labelled *M. atropurpureus* Murr., Type, but R. W. G. Dennis examined same and says it is the same as *M. tageticolor* Berk.

Spores 12-18 x 3-4 μ , lanceolate, smooth, non-amyloid.

Epicutis of broom-cells.

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Marasmius atropurpureus Murr. =

Marasmius haematocystis (Mont.) Fr.

according to Singh, Fl. Neotropica 17: 210. 1976.
Ephr. Sep. Mycol. 382. 1838.

ANNOTATED BY D. S. Dyer

DATE 11 Jan. 1986

22471

Marasmius tageticolor Berk.
(=M. atropurpureus Murr.)

Notes by Lowy (No. 1728, Lowy's number):

Cap rusty brown, plicate; stipe smooth and polished,
light brown; gills distant with coarse reticulations between.

Notes by L. R. Hesler:

Lamellae very distant, edges purplish (like cap), collar
not distinct if indeed one is present (I could not be sure).

Spores 13-18 (22) x 3-4.5 (6) μ , lanceolate, smooth,
reddish-brown in Melzer's reagent. Pleurocystidia scattered
ventricose, bottle-shaped to subcylindric, 40-52 x 7-10 μ ;
cheilocystidia of two types: (a) ventricose, slender bottle-
shaped, or nodulose, 30-51 x 7-12 μ ; (b) diverticulate cells.
Epicutis of broom-cells. Stipe hollow, surface glabrous,
with smooth cells.

THE UNIVERSITY OF TENNESSEE *See collection for details.*

TENN 22471 =

Marasmius ferrugineus Berk. *senon Dennis, Trans. Brit. Mycol. Soc. 34: 424, 1951. See also Sing, Fl. Neotropica 17: 222, 1976.*

ANNOTATED BY

L. E. Ditzel

DATE

7 Jan 1986

MARASMIUS TESTACEICEPS Murrill

Lloydia 9:321-322. 1946

"Pileus convex to plane, gregarious to caespitose, about 1 cm. broad; surface dry, rugose, testaceous with a slight bloom, margin entire, incurved when young; context membranous, testaceous, unchanging, odorless, mild; lamellae emarginate, inserted, narrow, close, white, entire; spores copious, white, smooth, subfusoid; about $10-12 \times 3 \mu$; stipe slightly enlarged at apex, pallid, concolorous near base, with short dense pubescence, 3-4 cm. long, 1 mm. or less thick.

"Type collected by W. A. Murrill in grass under a red maple in Gainesville, Fla., Aug. 11, 1944 (F 38912). Suggesting M. bahamensis in size and shape but the cap is testaceous instead of isabelline."

Notes on Type (by L. R. Hesler)

Spores $9-12 \times 3-4.5 \mu$, subfusiform, inequilateral, smooth, non-amyloid. Pleurocystidia $22-28 \times 4-5 \mu$, subfusiform, more or less appendiculate, numerous; cheilocystidia of two types: (1) subfusiform (similar to pleurocystidia), (2) more or less bottle-shaped with roughened to echinulate apices. Epicutis of cuneate, broom-cells. Stipe hollow (Fig. 2). Surface pubescence composed of long, graceful, more or less aciculate hairs.

MARASMIUS THUJINUS Pk.

New York State Mus. Bul. 67:26. 1903

Pileus 2-3 mm. broad, hemispheric, grayish-drab, glabrous, margin sulcate. Flesh membranous; odor and taste mild. Lamellae adnate, subdistant, broad, white, edges even. Stipe 15-30 mm. long, capillary, pale brownish, glabrous, equal.

Spores 6.5-7.5 x 3.5-4 μ , pip-shaped to sub-ovoid, smooth, non-amyloid. Pleurocystidia none; cheilocystidia diverticulate cells. Epicutis of appressed hyphae. Stipe solid; cortex and rind as usual (as in Fig. 4, but surface glabrous).

Habitat and Distribution. - On fallen spruce needles, Tennessee and North Carolina, June.

Notes on Type

Collected by Charles H. Peck, North Elba, New York,
September 19, 1902

Examined October 4, 1956

Spores 7-8 x 2.5-3 μ , pip-shaped to subellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of somewhat interwoven hyphae, some of which have diverticulate ends. Stipe solid with an occasional short hyphoid caulocystidium (Fig. 4).

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= Marasmiellus filipes (Pk.) Redhead
Fungi Canadenses No. 179, 1980.

ANNOTATED BY D. S. Day

DATE 11 Jan 1986

MARASMIUS URENS Fr.

Epicr. Myc., p. 373. 1838

Marasmius peronatus Fr. Epicr. Myc. p. 375. 1838

Collybia peronata (Fr.) Singer. Agar. p. 201. 1949

Pileus 5-40 mm. broad, convex, then plane, ("verona brown" to "cinnamon brown," dried), appearing glabrous under lens. Flesh thin; odor not recorded (Kauffman says "none"), taste unpleasant, acrid or sub-bitter (dried material). Lamellae narrowly adnate, becoming free, some forked behind, at first close, finally subdistant, rather narrow, whitish, edges even. Stipe 2-6 cm. x 1-3 mm., pale brownish with whitish pubescence, base tomentose, solid, but finally somewhat hollow-stuffed.

Spores (6) 7.5-10 (12) x (3) 3.8-4.5 μ , oblong-lanceolate to pip-shaped, slightly curved, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of pileus of appressed hyphae, with numerous, erect pilocystidia, 22-35 x 2 μ . Stipe nearly solid to somewhat hollow; cortex and rind as usual. (Fig. 2 and Fig. 4).

Habitat and Distribution. - On humus and debris, Tennessee and North Carolina, June-August.

Notes on Murrill's Collection of M. peronatus Fr.
Collected by Murrill, Crabbottom, Virginia, July 17-21, 1904.

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Marasmius urens Fr. is a synonym of Collybia peronata (Bolt.:Fr.) Sing. according to Moser [Die Rohn. Blat. 152. 1978] and Kuhn & Romagnesi [Fl. Anal. Champ. Sup. 89. 1953, as Marasmius peronatus].

In America, Collybia subrudis (Ellis:Pk.) Gilliam has often been misidentified as M. urens. See Gilliam [Mycotaxon 4(1):137. 1976] and Halling [Mycol. Mon. 8:71. 1983].

ANNOTATED BY

D. S. Duggan

DATE

11 Jan. 1986

Studied October 5, 1956

Spores 7-8 x 3.5-4.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia present (or absent in some sections), 25-38 x 4-5 μ , clustered, sub-fusoid. Epicutis of appressed hyphae. Stipe stuffed-hollow (Fig. 2, or 4).

MARASMIUS VELUTIPES B. & C.

Ann. Mag. Nat. Hist. III:4:294. 1859

(N.A.F. 9:275)

"Pileus submembranous, tough, plane or subumbilicate, gregarious, 8-20 mm. broad; surface dull-chestnut to ochraceous-brown, lighter or pallescent at the center, smooth; margin at first involute, thin, even, smooth, often becoming striate: context thin, tough, white or whitish; lamellae white, becoming yellowish, narrow, close, adnate: spores $6.5 \times 4-4.5 \mu$: stipe reddish-brown, covered above with whitish tomentum, below with tawny-yellow to brown hairs, flexuous, equal or swollen and spongy below, hollow, often rooting, 3-5 cm. long, 1-2 mm. thick."

Habitat and Distribution. - Among dead leaves of deciduous trees, Carolinas and Florida, and west to the Mississippi Valley.

Notes on Authentic Material

(U.S.D.A. No. 858)

Spores $9-11 \times 3.5-5 \mu$, pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia cylindric, more or less irregular, $24-30 \times 2.5-3 \mu$. Epicutis of pileus of appressed hyphae (at times there is an appearance of quasi-cellular

structure. Many sections were examined but genuine cellular epicutis was not established.) Stipe hollow; cortex and rind as usual (Fig. 2).

(Kauffman says spores 6-7 x 4 μ , ovoid, smooth.)
(N.A.F. 9:275, gives spores 6.5 x 4-4.5 μ .)

Notes on Murrill's Collections

New York Botanical Garden material examined October 11, 1956

(1) Collected by W. A. Murrill, New York City

Spores 6-6.5 x 3.5-4.5 μ , pip-shaped, few.

Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae.

(2) No. 1300, Pennsylvania, collected by W. A. Murrill,
July 3-8, 1905.

Spores 6-7 x 3-4 μ , pip-shaped, smooth, non-amyloid.

Pleurocystidia none; cheilocystidia clustered, prominent, cylindric-irregular, 32-52 x 5-7 μ . Epicutis of more or less erect brown hyphae. Stipe hollow (Fig. 2).

THE UNIVERSITY OF TENNESSEE

= Collybia biformis (Pk.) Sing. [Sydowia 15:55. 1962]
according to Gilliam [Mycotaxon 4(1): 137. 1976] and Halling [Mycol.
Memoirs 8: 73. 1983].

ANNOTATED BY D. E. D. [Signature]

DATE 11 Jan. 1986

MARASMIUS VIALIS Peck

New York State Mus. Ann. Rept. 51:287. 1898

(N.A.F. 9:276. 1915)

"Pileus membranous, convex, 4-10 mm. broad; surface pruinose, white: lamellae decurrent, distant, arcuate, white, becoming yellow-brown in dried plants: spores 7-9 x 4-4.5 μ : stipe bulbous, short, solid, tough, white-pruinose, white then brown or black within, 12-20 mm. long, 1 mm. thick."

Habitat and Distribution. - Damp ground, roadsides, etc., New York to Alabama.

Notes on Type

Type examined August 2, 1956.

Spores 7-8 x 3.5-4.5 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed, brownish hyphae. Stipe hollow (Fig. 2).

THE UNIVERSITY OF TENNESSEE

= Marasmiellus tricolor var. vialis (Pk.) Sing.
Beil. Nova Hedwigia 44: 96. 1973.

ANNOTATED BY

D.E. Delfino

DATE

11 Jan. 1986

MARASMIELLUS VIOLAE Murrill

Mycologia 35:427. 1943

See notes below

"Pileus irregularly circular, convex to subexpanded, 1-2 mm. broad; surface finely pubescent, white, margin even, entire, incurved; context membranous, white; lamellae adnate, few, distant, narrow, inserted, white, edges thick, entire; stipe eccentric, curved, subequal, slender, subglabrous, white, about 0.5 mm. long.

"Type collected by W. A. Murrill on the under side of green leaves of Viola villosa in Gainesville, Fla., July 25, 1939 (F 19742). Evidently parasitic and not associated with Cercospora Violae, which is common on this host. The cap of this dainty little agaric presses closely against the lower surface of the leaf. The nearest relative is probably M. inconspicuus Murrill, described from Cuba. Although satisfactory spore characters have not been obtained I think it best to publish the species so that others may be on the lookout for it."

Notes on Type (by L. R. Hesler)

The material is inadequate for satisfactory study. It was not possible to section the pileus, gills, and stipe, and no spores were found.

MARASMIUS WESTII Murrill

Fla. Acad. Sci. Proc. 7:110. 1945

"Pileus convex, not fully expanding, gregarious, 1.5-2 mm. broad; surface dry, uneven, pruinose, uniformly rosy-isabelline, margin paler, sulcate at times over the lamellae; context membranous, rosy-isabelline, astringent, odorless; lamellae adnate, distant, about 10 in number, sometimes inserted, broad, entire, pallid; spores pip-shaped, smooth, hyaline, 1- 2-guttulate, about $6 \times 3 \mu$; stipe central or eccentric, straight or curved, smooth, glabrous, shining, blackish, very slender, about 2 mm. long, attached either to a rhizomorph or the substratum; rhizomorphs aerial, hair-like, very long and creeping, with short branches, smooth, glabrous, shining, black.

"Type collected by Erdman West on dead sticks of laurel oak at Swan Lake, Fla., June 26, 1938 (F 17211). A minute membranous species associated with long hair-like rhizomorphs which creep over the surface of the substratum."

Notes on Type (by L. R. Hesler)

Spores $5.5-6 \times 2.8-3.0 \mu$, pip-shaped, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae. Stipe solid, glabrous; cortex and rind as usual.

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= Micromphala westii (Murr.) Sing.

ANNOTATED BY

D. S. Dyer

DATE

12 Dec. 1985

MARASMIUS NO. 8954

Pileus 1-2.5 cm. broad, convex, expanding plane or convex, glabrous, purplish brown, margin even or widely striate. Flesh medium thick, brownish; odor and taste mild. Lamellae adnate, close to subdistant, reddish-brown, broad, ventricose, edges even to slightly rough. Stipe 2-7 cm. x 2-5 mm., compressed, purplish-brown, pallid-pubescent, equal above the tapering base, hollow.

Spores 7.5-9 x 3-4 μ , ellipsoid-oblong, curved-apiculate, smooth, non-amyloid. Pleurocystidia none; cheilocystidia few, clavate, 25-32 x 5-6 μ . Cuticle of pileus ^{pseudo-}cellular (hyphae densely interwoven, thus appears cellular when sectioned). Stipe hollow (Fig. 2), reddish-brown in Melzer's.

Near fuscopurpureus which is yellowish when dry, has spores 8-10 x 4 μ (Murrill), or 4 x 3 (Rea), or 6-7.5 x 2.7-3.7 μ (K. & R.), narrow lamellae, stipe equal or enlarged below. Cf. M. inodorus Pat.

This might be hidden away in the literature under (cf. C. fusipes) Collybia, but the structure of the stipe is typical of Marasmius.

ANNOTATION LABEL

H. D. Thiers Herbarium, San Francisco State University (SFSU)

Name: = Marasmiellus inodorus Halling

Det.: Dennis E. Desjardin

Date: July 1991

Pileus 1-2 cm. broad, convex, expanding, at first reddish-brown, "hazel," often with a pinkish tint, soon fading to pallid-buff or grayish, disk darkest, glabrous, disk more or less rugulose, translucent-striate (wet), even (dry). Flesh thin, pallid; odor somewhat alkaline, taste bitterish-unpleasant. Lamellae adnate to adnexed, no collar, nearly subdistant, narrow, slightly broader behind, white, unchanging. Stipe 3-4 cm. x 1-3 mm., reddish-brown, with whitish fibrils, base reddish-brown strigose, equal, at times compressed, hollow.

Spores (7) 9-12 x (2.5) 3-4.5 μ , pip-shaped to oblong-lanceolate, at times subfusiform, smooth, white in mass, reddish-brown in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis fibrillose, hyphae smooth. Stipe hollow, with rind and cortex, caulocystidia pale, irregularly-nodulose.

Habitat and Distribution. - On humus, deciduous woods, Tennessee, May.

ANNOTATION LABEL	
H. D. Thiers Herbarium, San Francisco State University (SFSU)	
Name:	<i>Collybia semihirsuta</i>
Det.: Dennis E. Desjardin	Date: July 1991

MARASMIUS No. 9087

Pileus 1-2.5 cm. broad, convex, becoming nearly plane, minutely velvety, disk "Sanford's brown," marginal half "ochraceous tawny," faintly striate. Flesh pale brownish, rather thin; odor alkaline, taste alkaline becoming slightly bitter. Lamellae narrowly adnate, nearly free, white, broad, ventricose, close, many short, short ones of about four ranks, edges even. Stipe 2-3.5 cm. x 1-1.5 mm., pale to dark brown, apex white, pruinose, glabrescent, equal, solid.

Spores in mass: whitish, tinged ivory.

Habitat and Distribution. - On soil and humus under hemlock, Cades Cove, June 3, 1959.

Pileus 0.7-1.5 mm. broad, ochraceous-brown to reddish brown (dried), sulcate, glabrous. Lamellae adnate, distant. Stipe blackish, capillary, hollow.

Spores 7-8 x 3 μ , pip-shaped to ovoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia not found. Epicutis of broom-cells which are more or less stalked (see sketch). Stipe hollow (Fig. 1).

Habitat and Distribution. - On fallen leaves, Tenn., Aug.

Discussion. - This lacks pleurocystidia and cheilocystidia of the type of M. minutus; also the broom-cells differ.



Pileus convex, depressed to umbilicate, 4-10 mm. broad; surface glabrous, slightly viscid when moist, white, margin striate. Flesh whitish, reviving, tough. Lamellae decurrent, distant, arcuate, decurrent, white, yellowish when dry. Stipe 8-12 mm. x 0.5-1.0 mm., glabrous, white, base woolly-tomentose, white, hollow, equal.

Spores 8-10 x 4-6 μ , pip-shaped, smooth, brownish in Melzer's. Pleurocystidia and cheilocystidia none. Stipe marasmioid, hollow, with rind and cortex (Marasmius, fig. 1).

Habitat and Distribution. - On living and dead trunks of Rhododendron, Tennessee, July.

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UT 10458

Mycena sp.

Pileus apicatus of reprint, densely diverticulate hyphae. Hyphomorphous trama destitute. Spores amyloid, lacrymoid. Basal mycelium present.

ANNOTATED BY D. E. Desjardins

DATE 12 Dec. 1985

MARASMIUS NO. 11789

Pileus 1-2.5 cm. broad, convex-expanded, white, glabrous, margin striatulate. Flesh thin, white; odor none. Lamellae adnate, medium close, medium broad, white, edges fimbriate. Stipe 2.5-4.5 cm. x 1 mm., white, puberulent, dry, equal, tubular.

Spores 8-10 x 3.5-4.5 μ , subfusoid, smooth, non-amyloid. Pleurocystidia subulate, 28-45 x 4-6 μ (base); cheilocystidia cylindrical, 25-38 x 2-2.5 μ . Epicutis cellular, cells smooth. Stipe hollow; cortex and rind usual (Fig. 2).

Habitat and Distribution. - On humus, Tennessee, September.

THE UNIVERSITY OF TENNESSEE

UT 11789

Henningsmycen sp.

Pileus epineuric of report, filamentous, non-differentiated hyphae, w/ numerous clusters of erect, hyphal terminal cells - not cellular, not a trichothemium - erect elements accounting for primosity of pileus. Terminal hyphae non-dextrinoid, hyphal terminal tissue weakly differentiated. Basal mycelium present.

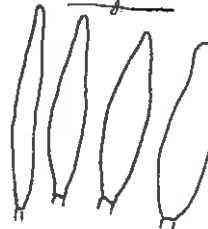
ANNOTATED BY

D.E. Desjardins

DATE

12 Dec. 1985

Cheilocystidia:



Basidioles:



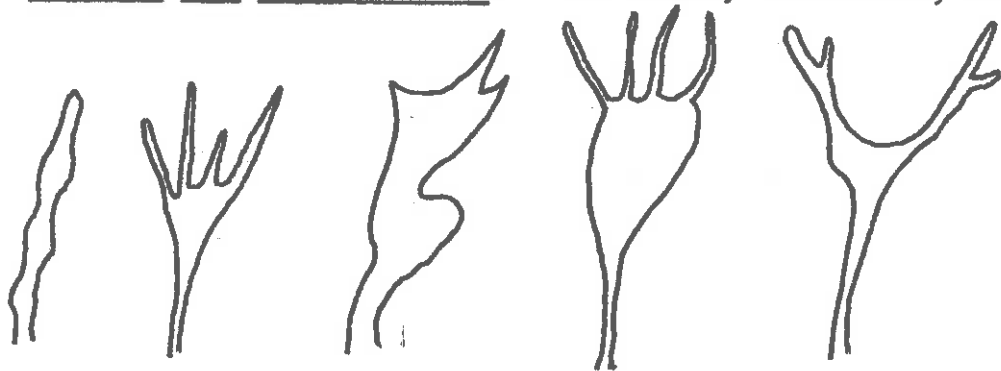
Pleurocystidia:



Fileus 12-20 mm., convex, "orange rufous" to "burnt sienna," dry, velvety, margin even. Flesh white, medium thick; odor mild, taste alkaline-bitterish. Lamellae narrowly adnate or free, rather close, medium broad, white, then creamy, edges even, at first faintly brownish. Stipe 2-3.5 cm. x 1-1.5 mm., whitish at apex, brownish downward, minutely velvety, equal, hollow.

Spores 6.5-7.5 x 3-4 μ , pip-shaped, smooth, in mass: white with a slight tint of cream, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Epicutis of broom-cells. Stipe hollow, with diverticulate cells (similar to fig. 3).

Habitat and Distribution. - In humus, Tennessee, June.



Diverticulate cells on surface of stipe

MARASMIUS No. 12751

Pileus 10-18 mm. broad, convex then expanding, disk $\frac{1}{2}$ depressed, dingy smoky-gray when young, finally grayish then pale buff, glabrous, slightly plush-like, sulcate to disk. Flesh thin, white; odor and taste mild. Lamellae attached to a false collarium, white then ivory to pale buff, subdistant, medium broad. Stipe 2-3 cm. x 0.8-1.5 mm., grayish-brown, fibrillose, equal, hollow.

Spores 5-7 x 2.3-3.5 μ , pip-shaped, smooth, yellow-brown in Melzer's. Pleurocystidia fusoid, buried, not conspicuous, 20-27 x 3-5 μ ; cheilocystidia slender-cylindric, 17-22 x 3-4 μ . Epicutis of appressed hyphae.

Habitat and Distribution. - On humus, Tennessee, June.

MARASMIUS NO. 17472

Pileus 4-8 mm. broad, convex, expanding plane, at times depressed, pale smoky brown (not matched), disk darker, glabrous, with a metallic lustre, more or less sulcate. Flesh membranous; ^{odor + taste - mild.} Lamellae narrowly adnate, very distant, few to several, many short, medium broad, dusky (when dried), edges rough. Stipe 15-30 mm. x 0.2-0.4 mm., black, shining, glabrous, equal, hollow.

Spores 6-7 (8) x 3.2-3.8 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia numerous, inconspicuous, subfusoid, 22-30 x 4-5 μ ; cheilocystidia similar. Epicutis of appressed hyphae; pileus trama of very loosely arranged hyphae ("aerenchyma"). Stipe hollow; cortex and rind as usual (Fig. 1).

Near M. minutus Pk. and M. androsaceus Fr.

(there may be basidia?)

MARASMIUS NO. 18904

near
Collybia unatensis
Murr.

Pileus 4-6 cm. broad, fleshy, convex, glabrous, reddish-brown (near "Roods Brown"), even. Flesh medium thick, firm, white; odor and taste mild. Lamellae narrowly adnate, rather close, medium broad to narrow, pallid, edges even. Stipe 4-6 cm. x 4-6 mm., white, floccose, twisted, striate, stuffed-hollow, enlarged at base.

Spores 7.5-9 x 2.7-3.7 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia few, cylindrical, 40-50 x 2-3 μ . Epicutis of brown, appressed hyphae. Stipe stuffed-hollow; cortex and rind differentiated (Fig. 2).

ANNOTATION LABEL

H. D. Thiers Herbarium, San Francisco State University (SFSU)

Name: *Collybia luxurians* Ph.

Det.: Dennis E. Desjardin

Date: July 1991

MARASMIUS NO. 19662

Pileus 5-10 mm. broad, convex, then plane or somewhat depressed, brown, glabrous, even to striate. Flesh thin; *odor faint mild*
Lamellae narrowly adnate, without a collarium, whitish, medium broad, subdistant or distant, venose at cap, edges even.
Stipe 1.5-3 cm. x 0.2-0.5 mm., pale grayish-brown, pruinose throughout, equal, hollow.

Spores 7-8 x 3-3.5 μ , pip-shaped to subfusiform, smooth.
Pleurocystidia and cheilocystidia none. Cuticle of appressed hyphae, no "broom-cells." Stipe hollow (Fig. 2).

Habitat and Distribution. - On sticks and leaves,
Tennessee, July.

This was first put in M. Oenei but is not that.

No. 20485 [Not the number!]

MARASMIUS ~~MINUTUS~~ Fr.

New York State Mus. Ann. Rept. 27:97. 1875

Pileus 2-3 mm. broad, convex-hemispheric, pale reddish-brown, paler when dried, glabrous, sulcate-striate. Flesh membranous. Lamellae narrowly adnate to adnexed, without collarium, whitish, subdistant to distant, medium broad, edges even. Stipe 1.5-3 cm. long, capillary, blackish-brown, glabrous, shining, inserted, hollow.

Spores 6-7.5 x 2.5-3.5 μ , obovoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none. Cuticle of pileus of appressed hyphae. Stipe hollow (Fig. 2).

Habitat and Distribution. - On fallen leaves of deciduous trees and on spruce needles, Tennessee, North Carolina, Virginia, June-August.

M. minutus (type) has pl. + ch., and the epicutis is 7 broom-cells; near M. thujinus which has diverticulate cells on epicutis.

MARASMIUS NO. 20602 (same as No. 20161)

Pileus 3-7 cm. broad, convex, expanding, finally wavy-upturned, more or less obtusely umbonate, "wood brown," "avellaneous" to "syal brown," sometimes "vinaceous buff," near "benzo brown" when young, somewhat radiately streaked by appressed fibrils, margin even or striatulate, often upturned. Flesh thin, pliant, white; odor none or slight (fungoid), taste pleasant. Lamellae adnate, becoming adnexed, white becoming tinted pale-brownish, narrow, crowded, edges fimbriate. Stipe 4-7 cm. x 4-8 mm., more or less compressed, apex white-floccose to scurfy or silky, scattered white-fibrillose below, longitudinally striate, white above, brownish elsewhere, solid, often twisted.

Spores 8-10 x 4-5 μ , ellipsoidal, obliquely apiculate, white to pale cream in mass. Pleurocystidia none; cheilocystidia clustered, cylindrical, flexuous, 20-40 x 4-6 (7) μ .

Habitat and Distribution. - On lawn, Tennessee, September.

Discussion. This has aspects of a *Collybia*.

ANNOTATION LABEL	
H. D. Thiers Herbarium, San Francisco State University (SFSU)	
Name:	<i>Collybia luxurians</i> Ph.
Det.: Dennis E. Desjardin	Date: July 1991



20602 - *Marasmius*
(same as #20161)

melanoleuca?

Collybia

Pileus 18-25 mm. broad, expanding-depressed, hygrophanous, "verona brown" when wet, "clay color" when dry, disk blackish, matted-fibrillose, drying from disk outward, margin striate when wet, even when dry. Flesh thin, pliant, pallid; odor and taste mild. Lamellae nearly free to adnexed, rounded behind, close, moderately broad, "pinkish buff" with a flesh tint when young, "rood's brown" with a white bloom when mature, edges even. Stipe 2-3.5 cm. x 2-3 mm., dingy brownish, densely white tomentose, equal, hollow, dry.

Spores 7-9 x 3-4 μ , pip-shaped, usually obliquely apiculate, smooth, in mass: white, becoming cream on white paper, non-amyloid. Pleurocystidia none; cheilocystidia few, clavate, not projecting far, 22-25 x 6-8 μ (these may be basidia, but no sterigmata seen). Epicutis of appressed hyphae. Stipe hollow (Fig. 2).

Habitat and Distribution. - On soil, in pine woods, Tennessee, December.

Discussion. - Near M. Olnei B. & C., which has gills attached to a collar.

Is this a Collybia?

= Collybia sp.

Annotated: Halling 1987

DeJonghe 1991



21089 - *Marasmius*

MARASMIUS NO. 21343

Pileus 2-3 mm. broad, convex, neither umbonate nor depressed, grayish-brown, glabrous, margin even. Flesh membranous. Lamellae adnate (no collar), subdistant, medium broad, whitish, edges even. Stipe 18-25 mm. long, capillary, dark-brown downward, paler above, glabrous, shining, hollow.

Spores 6-8 x 3-4 μ , pip-shaped, non-amyloid, smooth. Pleurocystidia and cheilocystidia none. Epicutis of appressed-interwoven hyphae. Stipe hollow; cortex and rind as usual (Fig. 1).

Near M. androsaceus.

THE UNIVERSITY OF TENNESSEE

Marasmius pallidocapillus Gilliam; Mycologia 67: 818. 1975.
Cheilocystidia & clamp connections absent.

ANNOTATED BY

D. E. Desjardins

DATE

1 July 1986

MARASMIUS NO. 21699

Fileus 18-21 mm. broad, convex, expanding-depressed, dry, somewhat hygrophanous, "light ochraceous buff," glabrous, even when dry, striate when wet. Flesh thin, pliant, white; odor and taste mild or slight. Lamellae free, rounded behind, white, close, broad, edges even. Stipe 3-4 cm. x 1-1.5 mm., glabrous, whitish above, dingy reddish-brown below, hollow, dry.

Spores 4-4.5 x 2-2.3 u, ellipsoidal, slightly pip-shaped, smooth, apiculate, white in mass. Pleurocystidia none; cheilocystidia clavate, clustered, short, 15-18 x 3-5 u. Cuticle fibrillose, not palisade nor parenchymatous.

Habitat and Distribution. - In deep humus, deciduous woods, Tennessee, May.

= Collybia sp.

Annotated: Halling, 1987

MARASMIUS NO. 21988

Pileus 8-15 mm. broad, convex, becoming plane, disk sub-depressed, fibrillose, "avellaneous," central portion "warm sepia," disk at times blackish, striate to disk. Flesh thin, white; odor and taste mild. Lamellae adnate, seceding and with a false collar, white, nearly subdistant, medium broad, edges flocculose. Stipe 1.5-2 cm. x 0.5-1 mm., pale avellaneous, pruinose, equal, inserted, hollow.

Spores 6-7.5 x 2.5-3 μ , pip-shaped, smooth, non-amyloid. Pleurocystidia none; cheilocystidia pyriform, 15-22 x 6-10 μ , clustered. Epicutis of appressed hyphae. Stipe hollow; cortex and rind (Fig. 2).

Habitat and Distribution. - In humus, deciduous woods, Tennessee, July.

THE UNIVERSITY OF TENNESSEE

Marasmius

Sect. Androsachi

see notes w/ collection

ANNOTATED BY

D. E. R. R.

DATE

Pileus 3-7 cm. broad, hemispheric-conic, then convex, expanding-wavy, "Mikado brown" to "syal brown," margin "clay color," glabrous, margin striate. Flesh medium thick on disk, thin on margin, whitish, pale reddish and brown next to cuticle; odor mild, taste bitter. Lamellae adnexed to adnate-decurrent, narrowly attached, narrow, medium close, whitish, becoming dingy brownish, edges even. Stipe 3-7 cm. x 5-11 mm., pallid above, reddish brown below, apex glabrous, more or less whitish-tomentose below, dry, solid, tapering downward.

Spores 8-10 x 3.5-4.5 μ , ellipsoid, obliquely apiculate, smooth, white in mass, yellowish in Melzer's reagent. Basidia 25-32 x 7-10 μ , with long (10 μ) sterigmata, 2-4-spored. Pleurocystidia scattered, buried, clavate with a long, slender neck, 32-37 x 4-6 μ ; cheilocystidia none or few then flexuous-cylindric, 16-19 x 2.5-3.5 μ . Stipe hollow or nearly solid, not sharply divided into cortex and rind, with scattered, fusoid or hyphoid caulocystidia (somewhat like Fig. 4).

Cuticle fibrillose (no broom-cells).

Habitat and Distribution. - On saw-dust, Tennessee, October.

Discussion. - This has some aspects of a Collybia. The structure of the stipe is not clearly like other Marasmii.

Cf. No. 20602.



22138 - *Marasmius (subnudus) (Ellis) PK.?*

cf. Melanocorypha

MARASMIUS NO. 22313

Pileus 15-35 mm. broad, convex, soon expanded, "saya brown" to "snuff brown," disk darker, dry, fibrillose, at times scaly from fibrils upturned at ends, margin striate. Flesh thin, pliant, white; odor and taste mild. Lamellae narrowly adnate, nearly free, white, nearly subdistant or close, medium broad to narrow, venose at cap, many short, edges slightly fimbriate. Stipe 3-4 cm. x 1-2 mm., apex whitish, elsewhere reddish-brown, white-tomentose throughout, equal, inserted, equal, spongy then hollow.

Spores 7-9 x 2.7-3.5 μ , pip-shaped, smooth, in mass: pale cream on white paper, non-amyloid. Pleurocystidia few, fusoid 25-37 x 5-6 μ , not conspicuous; cheilocystidia similar, 22-27 x 5-7 μ . Epicutis of appressed, brown hyphae. Stipe finally hollow (Fig. 2).

Habitat and Distribution. - On humus, deciduous woods, Tennessee, July.

= Collybia subnuda (Ellis & Ph.) Berk.

Annotated: Halling 1987

Fileus 5-12 mm. broad, convex, expanding plane, finally upturned and broadly depressed, white with a "pinkish buff" disk, becoming rather uniformly "light buff," densely appressed-fibrillose (under lens), in age striate or rugose-striate. Flesh thin, white; odor mild, taste mild or unpleasant. Lamellae narrowly adnate, seceding and attached to a collarium, white, then ivory, medium broad to narrow, subdistant, many short, edges slightly fimbriate. Stipe 1.5-3 cm. x 0.5-1 mm., apex white and pruinose, elsewhere brown and densely pale-tawny tomentose, equal or tapering downward slightly, hollow, inserted.

Spores 5-7 x 2-3 μ , pip-shaped, smooth, yellowish in Melzer's reagent, white in mass. Pleurocystidia none; cheilocystidia ventricose to cylindric, at times wavy, 22-25 x 3-4 μ . Epicutis of appressed hyphae. Stipe hollow; with cortex and rind (Fig. 2).

Habitat and Distribution. - On fallen leaves and twigs, in deciduous woods, Tennessee, July.

MARASMIUS NO. 22375

Pileus 10-15 mm. broad, white with a buff disk, convex, expanding, depressed from upturned margin, silky, margin even at first, becoming indistinctly rugose-striate. Flesh thin, membranous, odor and taste mild or slight. Lamellae adnate to slightly adnexed, nearly close, medium broad, many short, venose at cap, white, edges rough. Stipe 1.5-3 cm. x 0.7-1.0 mm., apex white, elsewhere "avellaneous" or brownish, scattered-floccose to pubescent, tapering downward, hollow.

Spores 6-8 x 3.5-4 μ , pip-shaped, smooth, non-amyloid, white in mass. Pleurocystidia none; cheilocystidia indistinct, clavate, 18-25 x 3-5 μ . Epicutis of appressed hyphae. Stipe hollow; cortex and rind (Fig. 2).

Habitat and Distribution. - On fallen herb stems, Tennessee, July.

THE UNIVERSITY OF TENNESSEE AT 22375

Quite possibly, this collection represents:

Marasmiellus stenophyllus (Mont.) Sing.
Sydowia 15:58. 1962

see collection for details.

ANNOTATED BY

D. E. D. J. H.

DATE

8 Jan 1986

MARASMIUS NO. 22429

Pileus 1-3 cm., at first convex and "syal brown," then expanding and fading to pinkish buff or nearly white, disk remaining "syal brown," margin subplicate. Odor mild, taste fungoid. Stipe 4-7 cm. x 2-3 mm., "tawny" to "hazel" with pale or buff tomentose-hairs, bases confluent.

Spores 7.5-10 x 3-3.5 μ , pip-shaped, smooth, non-amyloid, white in mass. Pleurocystidia and cheilocystidia none. Epicutis of appressed hyphae.

Habitat and Distribution. - On dead leaves, Tennessee, September.

Discussion. - Same as No. 21365 et al.

= Collybia spongiosa (Berk. + Curt.) Sing.

Annotated: Halling, 1987

MARASMIUS (near subarchyropus Murr.) No. 22457
(Lowy No. 1735)

(Notes by L. R. Hesler)

Pileus 3-5 cm. broad, reviving, "cinnamon buff" when
revived, ivory yellowish when dried, glabrous, margin even.
Flesh medium thick, white; odor and taste strong, unpleasant, ^{of beef extract,}
Lamellae rounded-behind, free, remote, close, rather narrow,
whitish, edges even. Stipe 3-4 cm. x 3-4 (8 when compressed) mm.,
concolor to pileus, glabrous, tough, equal, solid.

Spores 5-7 x 2-2.7 μ , pip-shaped, smooth, pseudo-amyloid
(yellowish to brownish in Melzer's reagent). Pleurocystidia
and cheilocystidia none. Epicutis of appressed hyphae.

Differs from M. subarchyropus which has adnate gills and
a hollow stipe.

THE UNIVERSITY OF TENNESSEE

Not a Marasmius. Possibly a Collybia in subgenus Rhodocollybia.
Pileus outside of radially oriented, interwoven, non-denticulate hyphae.
Lamellar trama weakly dextrinoid (?). No spores observed on lamellae or
stipe apex.

ANNOTATED BY D. E. Desjardins

DATE 1 July 1986

Marasmius

~~EMPHATIA~~ No. 22644

Pileus 8-15 mm. broad, convex, disk umbilicate-depressed, hygrophanous, white-shining when dry, pale buff when wet, glabrous, striate to disk. Flesh thin, pliant, white; odor and taste mild or slight. Lamellae decurrent, white, venose at cap, thin, moderately broad, tapering in front, subdistant to nearly distant, edges even. Stipe 18-25 mm. x 1-1.5 mm., white, dark-brown below, base strigose, equal, pruinose, hollow.

Spores 8-10 x 3-5 μ , ellipsoid to subfusoid, smooth, white in mass, yellowish-brown in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel.

Habitat and Distribution. - Oak log, Tennessee, September.

Discussion. - ~~Near O. corticola Pl.~~ *Myceena trivialis*.

Smith thinks it is near M. candidus.

THE UNIVERSITY OF TENNESSEE

Not Marasmius or Marasmiellus; Epistia a report longer of filamentous, non-dimetriculate hyphae, w/ an occasional erect hyphae and cell. Spores inamyloid; hyphal cystidia absent. Stipe base non-institious. Possibly a species of Ceromyces, Hydropus or Hemimycena.

ANNOTATED BY D.E. Desjardes

DATE 11 Dec. 1985



22644 - ~~Onphalia~~ Marasmius

Pileus 3.5 cm. broad, convex, becoming plane,
"Brussel's brown," darker when young, glabrous, striatulate
half-way. Flesh thin, pallid; odor and taste mild.
Lamellae adnate, no collar, close, rather narrow, edges even.
Stipe 5 cm. x 1.5 mm., red-brown, densely grayish fibrillose-
furfuraceous.

Spores 5.5-7 x 2.5-3.5 μ , ellipsoid, smooth, white in
mass, yellowish-brown in Melzer's. Pleurocystidia none;
cheilocystidia clavate to cylindric, smooth, 24-30 (42) x
5-7 μ , few, scattered or at times several in a cluster.
Epicutis fibrillose.

Habitat and Distribution. - On humus, deciduous woods,
Tennessee, September.

= Collybia sp.

Annotated: R. E. Halling, March 1987

MARASMIUS No. 22982
(same as 22984)

Fileus 15-20 mm. broad, convex, expanding-convex,
"drab" or lighter when dry, "Hays brown" to "warm sepia"
when wet, zonate when wet, faintly rugulose and subvelutinous
when dry, even. Flesh white, thick on disk; odor and taste
somewhat alkaline. Lamellae narrowly adnate, broadest and
rounded behind, narrowed in front, close, white becoming pale
pinkish, many short, the short ones crisped, edges fimbriate.
Stipe 3-5 cm. x 2-4 mm., brown, darker downward, glabrous above,
pallid-strigose at base, equal, hollow.

Spores white in mass.

ANNOTATION LABEL	
H. D. Thiers Herbarium, San Francisco State University (SFSU)	
Name:	<i>Collybia semihirsuta</i> (Pk.) Halling
Det.: Dennis E. Desjardin	Date: July 1991



22982

22982 - *Marasmius*
(same as 22984)



22981

22984 - Marasmius
(same as 22982)



22995 - *Marasmius*

THE UNIVERSITY OF TENNESSEE

UT 22995

Marasmiellus subnigricans (Mun.) Sing.

[Same as 24859, 13821]

ANNOTATED BY

D. E. B. J.

DATE

12 Dec. 1985

MARASMIUS No. 23079

Pileus ivory yellow, with a brownish umbo, fibrillose, sub-rimose. Flesh thin, white; odor and taste mild. Lamellae free, crowded, narrow, white then cream, edges fimbriate. Stipe 4-7 cm. x 1-1.5 mm., brownish, covered with a whitish-fibrillose coating, hollow, equal.

Habitat and Distribution. - On humus, Tennessee, July.

= Collybia polyphylla (Pk.) Sing. ex Halling

Annotated: R. E. Halling, Mar. 1987

MARASMIUS No. 23102

Pileus 4-12 mm. broad, convex, expanding, whitish or pale buff, even. Flesh white, thin; odor and taste mild. Lamellae adnate, seceding, subdistant or nearly close, medium broad, white, venose, edges fimbriate. Stipe 1-2.5 cm. x 0.5-1.5 mm., apex white, pale brownish below, white-tomentose, tomentum short, equal, solid (?).

Habitat and Distribution. - On humus, deciduous woods, Tennessee, August.

MARASMIUS No. 23113

Pileus white, turning pale buff as it dries. Odor and taste mild. Stipe brown with grayish tomentum.

Habitat and Distribution. - On soil, deciduous woods, Greenbrier, August.

No. 23385

Marasmius urens?
in humus, mixed woods
Boarts, September 3, 1959

Fileus 1-3 cm. broad, convex, expanding, hygrophanous, "sageal brown," margin slightly paler, innately fibrillose, margin striate. Flesh thin, white, brown next to the cuticle; odor slight, taste soon becoming unpleasant. Lamellae adnate, white, then pale cream, close, rather narrow, some forking (especially behind), intervenose or somewhat anastomosing, many short, edges flocculose. Stipe 1-3 cm. x 1-2 mm., pallid brown at first, finally pale brown at apex, dark brown downward, with dense, white pubescence, base brown-strigose, solid.

= Collybia subnuda (Ellis ex Ph.) Wilham

Annotated: R. E. Halling, Mar. 1987

23758 Marasmius

on soil, base of oak stump, Cades
Cove, June 28-60

Pileus 1.5-3 cm. broad, convex, expanding-convex,
hygrophanous, "pale ochraceous buff" (dry), watery buff (wet,
pruinose (young), glabrescent, margin even, faintly striate
in age. Context thin, white; odor alkaline, taste unpleasant.

Lamellae adnexed, white then "light ochraceous buff",
medium close, narrow, thin, many short, edges slightly fimbriate.

Stipe 1.5-2 cm. x 1.5-2 mm., brown, apex sparingly
pruinose, elsewhere glabrous, tapering downward, hollow.

= Collybia sp.

Annotated: R. S. Halling, Mar. 1987

23782

Marasmius

on compost (leaves, ashes, soil)

Timberlake Rd.

Aug. 14-60

Pileus 15-27 mm., convex-plane, disk depressed-umbilicate, "Vandyke brown", "burnt umber", to "cameo brown", somewhat hygrophanous, faintly atomate and velvety, slightly silky, margin striatulate. Context pallid-brown, thin; odor slight, taste slightly spicy.

Lamellae adnate or slightly adnexed, pallid whitish, thin, narrow, close, many short, short ones of 5-6 ranks, often forked or anastomosed, edges slightly fimbriate.

Stipe 3-6 cm. x 1.0-2.0 mm., apex pallid, darkening to brown below, silky to fibrillose, equal, stuffed.

Spore deposit tinged pale yellow.

= Collybia sp. sect. Vestipeds

Annotator: D. E. Desjardins, Jan. 1987

24157 C-63 *Marasmius*

on leaf litter, deciduous woods
Cherokee Farm, U.T.

October 9, 1960

Coll. T. H. Campbell

Pileus 1-2 cm. broad, cream white, convex, thin and translucent, margin inflexed. Lamellae cream, 1 mm. broad, acute, emarginate, becoming waxy (esp. lamellulae), nearly equal, entire, forking near margin. Lamellulae in several series. Stipe 2.5-5.0 cm. x 1-2 mm., equal, dull glabrous, cream white above, reddish-brown in lower $3/4$ to $1/4$, hollow. Odor none, taste none. Spore print white.

24324

Marasmius

Mycena 7

Photo

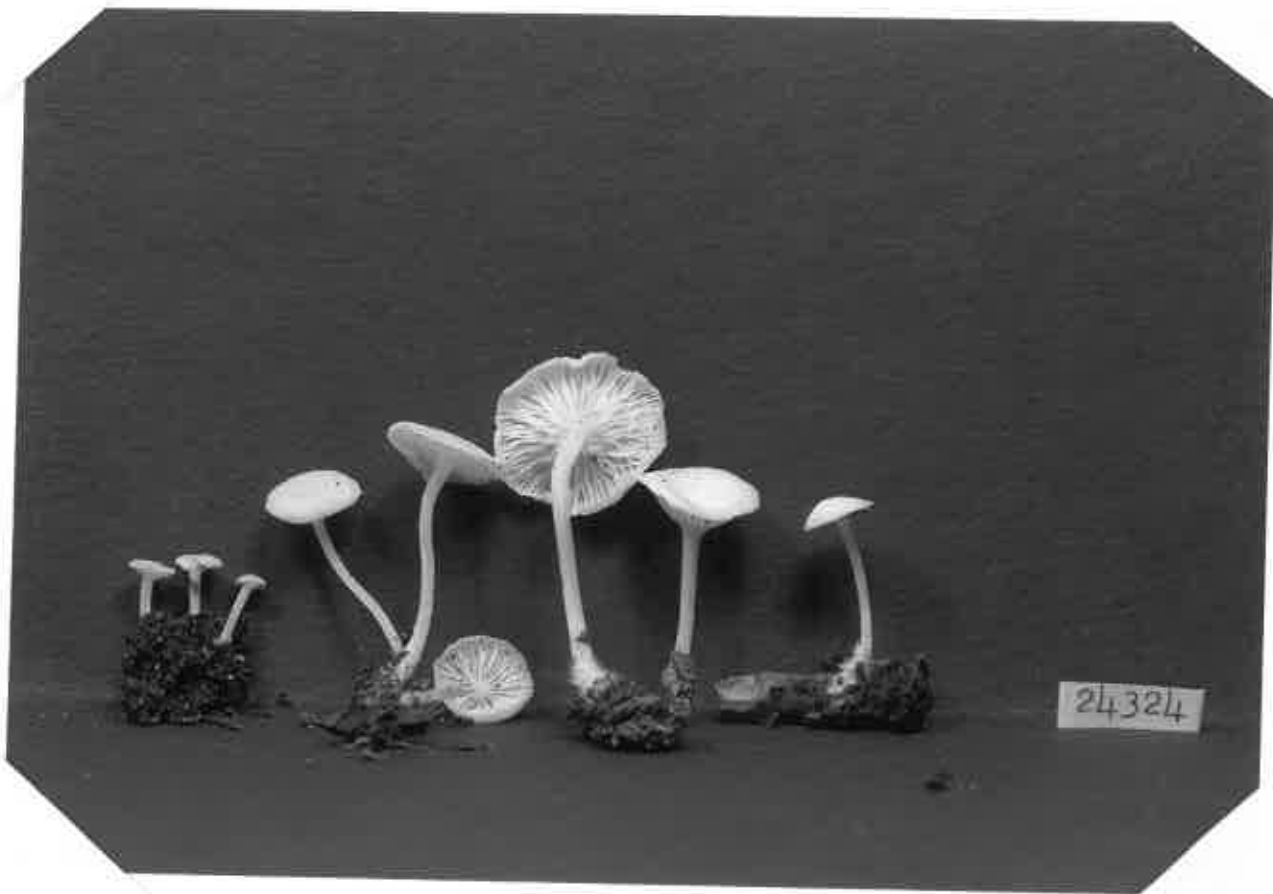
on decayed oak stump
Norris Dam, June 27-61

Pileus 10-15 mm. broad, white, convex, expanding depressed, very minutely silky or pruinose, hygrophanous, even (dry) faintly striate (wet). Context white, more or less brittle; odor alkaline, taste slightly bitterish-unpleasant.

Lamellae adnate then adnate-decurrent, white, close or nearly subdistant, several lamellulae, edges fimbriate.

Stipe 2-3 cm. x 1-1.5 mm., white, pruinose above, glabrous elsewhere except the white-strigose base, equal, tubular, sub-cartilaginous.

Spores (few found; deposit white very thin) 8-11 x 4-4.5 μ ,
smooth,
irregularly pyriform to lanceolate, /pale yellow in Melzer's.
Pleurocystidia none; cheilocystidia 32-42 x 4-7 μ , ventricose-rostrate to fusoid, with a rather acute, tapering apex. Cuticle a zone of irregular pseudoparenchyma cells, 15-50 x 10-20 μ .



24324 - *Marasmius* ?

MARASMIUS No. 24347

on hemlock needles & humus
Flat Mt. Rd., Highlands, June 14-61

Pileus at first dull brown, pallid buff at maturity,
rugose. Odor strong of garlic. Stipe dingy brown, apex
paler.

Marasmius No. 24378

Tricholoma

Photo

Indian Creek, July 19-'61

Pileus "russet-vinaceous", sulcate to disk. Lamellae white, free or nearly so, no collarium. Stipe "purplish vinaceous" above, darker ("dark livid brown") below.

Marasmius 24399

epodius?

Photo

Oak Ridge, Hatcher, July 20-'61

Pileus 1.5-3 cm., convex then plane, hygrophanous, "sageal brown", (dry), "cinnamon brown" when wet, disk darker (blackish) and depressed, surface rough, striate to disk. Context white, then, pliant; odor mild, taste slightly peppery.

Lamellae free, no collarium, white, close, rather narrow, many lamellulae, occasionally forked, intervenose.

Stipe 2.5-4.5 cm. x 1.5-2 mm., brownish, apex pale, densely white short-strigose or tomentose, equal, solid.

= Collybia subnuda (Ellis ex Ph.) Vilhain

Annotated: R. E. Halling, Mar. 1987



24378 - Marasmius

by Helicofus



24399- *Marasmius*

MARASMIUS No. 24490

Pileus 1-2 cm. broad, convex, expanding, disk depressed, "pinkish buff" to "clay color", minutely fibrillose, coarsely striate. Context pallid, thin, pliant; odor and taste mild.

Lamellae adnate, seceding to form a false collarium, whitish, nearly close, many lamellulae, edges rough.

Stipe 1.5-2 cm. x 1-2 mm., densely covered by a pallid short-tomentosity, reddish-brown beneath, stuffed-solid, equal, base strigose-tomentose.

Spores in mass: pale yellow.

= Collybia sp.

Annotated: R.E. Halling, Mar. 1987

MARASMIUS NO. 24748

Pileus 2-2.5 cm. broad, convex, "tawny", with scattered, tawny fibrillose scales, striate half way. Context white, thin; odor mild, taste somewhat acrid.

Lamellae narrowly attached to a false collarium, white, narrow, close, lamellulae several, none forking.

Stipe 4-9 cm. x 2-2.5 mm., pale brownish, rough scaly above, white-tomentose below, solid, equal.

= Collybia submunda (Ellis & Ph.) Gillman

Annotated: R. E. Halling, Mar. 1987

MARASMIUS NO. 24777

Pileus 2-3 cm., disc black, elsewhere pale brownish, striate. Context blackish or brown; odor mild, taste promptly of garlic.

Lamellae rounded-free, white, close, medium broad, many short.

Stipe 2-4 cm. x 2-3 mm., dingy brownish, minutely white, pruinose.

= Collybia sp.

Annotated: R. E. Halling, Mar 1987

MARASMIUS NO. 24746

Pileus 1-3 cm. broad, "snuff brown", margin paler to whitish when dry, scattered-fibrillose (under lens), striate to disk. Context white, thin; odor and taste mild.

Lamellae adnate, white, narrow, subdistant, a few forking, several lamellulae.

Stipe 2-5 cm. x 2-3.5 mm., pallid and densely pinkish brown pruinose above, dark brown and strigose below, compressed, at times grooved or sub-lacumose, hollow.

= Collybia sp.

Annotated: R. E. Halling, Mas. (1987)

MARASMIUS 24846

Pileus 5-8 mm., convex-applanate, plane, very slightly umbonate, at times faintly depressed, whitish, disc pale buff, densely matted-fibrillose, even. Context white, soft; odor none, taste mild, slight.

Lamellae adnate, seceding and with a false collarium, white, narrow, close, many lamellulae, edges minutely fimbriate.

Stipe 15-23 mm. x 0.8-1.0 mm., apex white, brown elsewhere, with scattered, whitish scales, equal, solid.

24859

MARASMIUS

Photo

Pileus 2-3 cm., convex, expanding, white, deeply striate to disc, glabrous. Context white, thin; odor mild or slight, taste farinaceous-bitterish.

Lamellae adnate-subdecurrent, white, broad, subdistant, alternating long and short, venose at cap.

Stipe 3.5-6 cm. x 1.5-3.5 mm., white, slightly fibrillose, equal, hollow.

Spores with a faint cream tint.

THE UNIVERSITY OF TENNESSEE

Marasmiellus ~~subnigricans~~ (Mun.) Sing.

[Same as 13821, 22995]

ANNOTATED BY

D. E. DeLoach

DATE

12 Dec. 1985



24859 - *Marasmius*

24908

MARASMIUS

f. cohaerens

Photo

Pileus 12-27 mm. broad, convex, then plane, umbilicate, "saya brown", margin paler, fibrillose, striate or rugose-striate to disc. Context thin, pliant, white; odor and taste sub-alkaline.

Lamellae adnate to adnexed, pallid-whitish, close, rather rather (?), many lamellulae, edges slightly rough or flocculose.

Stipe 3.5-6 cm. x 1.5-3 mm., brownish below, whitish above, white pruinose-fibrillose, equal, hollow.

ANNOTATION LABEL	
H. D. Thiers Herbarium, San Francisco State University (SFSU)	
Name:	<i>Collybia</i> sp. sect. <i>Vestigata</i>
Det.: <i>Dennis E. Desjardin</i>	Date: <i>Jan. 1987</i>

24908

24908 - *Marasmius*

24936

MARASMIUS

Pileus 2-3 mm., depressed, pale ochraceous, appearing more or less velvety, striate.

Lamellae adnate, no collarium, dingy yellowish, subdistant, medium broad.

Stipe 10-15 mm. x 0.2-0.3 mm., dark brown, densely covering with brown short fibrils.

25522

Marasmius

On soil, under pine
Knoxville (Hesler's), May 29, 1963.

Pileus 1.5-2.5 cm. broad, plano-convex, expanding more or less wavy, hygrophanous, dingy brown when wet, "pinkish buff" to "cinnamon buff" when dry, becoming reddish-brown on the disc, more or less atomate, minutely velvety, margin even. Context white, medium thick; odor and taste alkaline.

Lamellae rounded-adnexed, white then dingy pale-brownish, close, broad, many lamellulae, edges flocculose.

Stipe 2-2.5 cm. x 2-2.5 mm., reddish-brown, pale and pruinose at apex, elsewhere glabrous, equal below the slightly broadened apex, stuffed-hollow.

Spores-print failed.

ANNOTATION LABEL	
H. D. Thiers Herbarium, San Francisco State University (SFSU)	
Name:	<i>Collybia earlae</i> (Mun.) Mun.
Det.: Dennis E. Desjardin	Date: Jan. 1987

MARASMIUS No. 25607

on humus, Hesler's woods, June 23, 1963.

Pileus 2-3 cm., white, glabrous, sulcate to disc.
Context white; odor mild, taste acidulous-farinaceous.

Lamellae adnate-decurrent or adnexed, white narrow,
subdistant to distant, many lamellulae, venose at cap.

Stipe 3-6 cm. x 1.5-2.5 mm., white.

MARASMIUS No. 25667

on fallen pine needles, Norris, July 8, 1963.

Pileus 4-15 mm. broad, plano-convex, then plane, finally depressed, white, fibrillose-appressed, even. Context white, thin; odor and taste mild.

Lamellae adnexed, white, then cream, medium narrow, many short, the short ones of 5 ranks, a few forking.

Stipe 12-22 mm., x 0.5-1.5 mm., brown, white downy-fibrillose to 'scurfy, apex white and glabrous to nearly so, tapering downward, hollow.

MARASMIUS No. 25791

Under pine, Hesler's, July 31, 1963.

Pileus dark-brown, paler in age. Taste mild.

Stipe brown, densely white fibrillose.

Spore-deposits: white.

= Collybia biformis (Pk.) Sing.

Annotated: R. E. Halling, Mar. 1987

26244

MARASMIUS

in humus, mixed woods, Mt. LeConte, June 10, 1964

Pileus "Saccardo's umber", velvety, disc umbonate-rugulose. Context thin, tough, pallid; odor mild.

Lamellae emarginate, close, medium narrow, near "old gold" but paler, edges whitish-fimbriate.

Stipe velvety, near "isabella color" but slightly more yellowish, tough, hollow.

Spore-print failed.

= Xeromphalina tenuipes (Schw.) A. H. Smith

Annotated: R. S. Halling, Mar. 1987

26300

MARASMIUS

in deciduous-hemlock woods, Mt. LeConte, Aug. 5, 1964

Pileus olivaceous, disc reddish brown, velvety, plicate-striate. Context dingy-watery; odor mild, taste rather strong, unpleasant. Lamellae nearly free, broad, subdistant, white, edges with olivaceous tufts. Stipe reddish-brown below, apex white, glabrous.

On fallen leaves, woods, Cades Cove, leg. Petersen and Morton, July 20, 1966.

Pileus 1.5-3 cm broad, convex, expanding, umbilicate, at first "Mars brown," then "cinnamon brown," appressed-fibrillose, finally striate to disc. Context white, thin; odor and taste mild.

Lamellae adnate to adnexed, white, close, narrow, many lamellulae.

Stipe 3-4.5 cm long, 1-1.5 mm thick, pale brown throughout, densely white to buff scabrous over all, base strigose, hollow, equal.

Spores deposits: white.

= Collybia sp.

Annotator: D. E. Desjardis



29162

29162 - *Marasmius*

29190

MARASMIUS

On fallen twig, Cades Cove, LPH, July 20, 1966.

Pileus 3-8 mm broad, subumbonate, disc usually depressed, pinkish white, minutely white silky, striate to disc. Context membranous, white; odor and taste mild.

Lamellae adnate to adnexed, white, subdistant, medium broad, forked, slightly veined, often crisped.

Stipe 7-10 mm long, 0.5-1 mm thick, avellaneous, base white, somewhat pruinose, finally tubular.

= Marasmiellus praecutus (Ellis) Halling

Annotated: D. E. Desjardins, July 1991

29250

MARASMIUS

Pileus hygrophanous, "syal brown" to "cinnamon," disc slightly darker, glabrous, even. Context concolorous or dingy; odor mild, taste slight.acidulous. Lamellae free, remote, narrow, crowded, white, many lamellulae of many ranks ! Stipe concolorous, paler above, darker downward, short-scabrous, hollow, often compressed.

= Collybia confluens (Pers.:Fr.) Kumm.

Annotated: R. E. Halling, Mar. 1987

29339

MARASMIUS

on lawn, Hesler's, Aug. 18, 1966

Pileus 1.5-4 cm broad, convex, then plane, hygrophaneous, "Mikado brown," paler brown when dry, glabrous, translucent-striate. Context white, pliant; odor slight, taste subacidulous.

Lamellae adnexed, white, becoming "pinkish buff," close, medium broad behind, narrowed toward front, alternating lamellulae.

Stipe 4-6 cm long, 2-5 mm thick, whitish above, darker below, base concolorous with pileus, striate, subglabrous, enlarged slightly downward, hollow.

Spores in deposit: "cartridge buff."

29340

MARASMIUS

on lawn, Hesler's, Aug. 18, 1966

Pileus 1-2 cm broad, convex, soon plane, hygrophanous, at first "cinnamon brown," slightly paler in age or when dry, glabrous, disc slightly depressed, translucent-striate. Context concolorous; odor and taste slight but rather distinct.

Lamellae rounded-adnate or adnexed, white, finally dull-white, close, narrow, linear, many lamellulae.

Stipe 2.5-3.5 cm long, 1-1.5 mm thick, whitish to pale-brown, minutely and densely white-pruinose, equal, hollow.

Sporesprint failed.

= Collybia sp.

Annotator: D. E. Desjardins, July 1991

Marasmius

29513

on fallen leaves, Roaring Fork Rd., near Cemetery, GSMUP,
July 24, 1975

Pileus 4-10 mm broad, convex, sometimes umbilicate or depressed,
white, silky-appressed, dry, even. Context thin; odor none.

Lamellae decurrent, whitish, faintly tinged cream at maturity,
subdistant, narrow, somewhat intervenose, lamellulae present.

Stipe 12-20 mm long, 0.4-0.7 mm thick, white, pruinose or minutely
scabrous (?), dry, equal, solid; not resinous to touch.

Spore deposit failed.

= Resinomyces rhododendri

Annotated: D. E. DeJardin, July 1991

29975

MARASMIUS

Roaring Fork, near Gatlinburg, on birch limb, July 22, 1968.

Pileus plane, at maturity marginal half pale grayish-brown, elsewhere "saya brown" to "snuff brown", conspicuously striatulate to disc. Context thin, pallid, brown under cuticle; odor and taste mild.

Lamellae adnexed, white, becoming brown-spotted, narrow, medium close, forked behind, numerous lamellulae.

Stipe brown or nearly black, paler upward, white at apex, pruinose throughout, with a tubule, tapering slightly downward.

Spores in deposit: white.

= Collybia sp.

Annotated: D. E. Desjardis, July 1991

29954

MARASMIUS

PHOTO

Deep, needle-bed, pine planting, near Harbison Lake, Highlands,
August 27, 1967

Pileus pale brown, center darker, margin paler. Context concolor;
odor and taste mild. Gills white, narrow.

Stipe dark-brown below, paler upwards, equal, hollow, apex white-
pruinose, elsewhere glabrous, base matted.

= Collybia confluens (Pers.:Fr.) Kummer

Annotator: D. E. Desjardis, July 1991

30169

MARASMIUS (cf. scorodonis)

PHOTO

On humus, mixed woods, Roaring Fork, July 31, 1969.

Pileus 2-3 cm, pallid brown, disc dark brown, appressed-fibrillose (under lens), dry, radiately rugulose-striate. Context concolor under cuticle, whitish below, thin; odor and taste unpleasant, of garlic.

Lamellae rounded-free, white then pale cream, close, narrow, many lamellulae.

Stipe 3-5 cm long, 1.5-2 mm thick, pallid brown, densely white-pruinose, hollow, equal, base mycelioid.

Spores white.

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TENN 30169 = Collybia sp. aff. C. pinastri (Kauff.) ^{Mitchell & A.H. Smith}

Differs from C. pinastri in having thin-walled concolorous, paler lamellae, less distinct pileus epinastrioid elements.

ANNOTATED BY Dennis E. Desjardin

[see collection for additional notes.]

DATE 16 April 1987



30169: *Marasmius*

30239

MARASMIUS

Under deciduous trees, Indian Creek, June 28, 1968

Pileus white. Context white; odor and taste slightly alkaline. Stipe "cinnamon buff" to "chamois".

= Collybia subsericea

Annotated: D. E. Desjardins, July 1991

30403

MARASMIUS

In deciduous woods, Mt. LeConte, October 9, 1968

Pileus 2-4.5 cm broad, convex then plane, at first white with a pale brownish disc, then "light buff", the central portion darker, surface rugulose, appearing velvety under a lens. Context white, rather thin; odor and taste alkaline.

Lamellae adnate; white then pale cream, close, narrow, broadest behind, lamellulae numerous.

Stipe 2-3 cm long, 2-4 mm thick, basically white but covered with a matted, brown tomentum, equal, hollow.

Spores white in deposits.

= Collybia sp.

Annotated: D. S. Desjardins, July 1991

35172

MARASMIUS

On fallen twig of beech, Indian Gap, July 25, 1969.

Pileus pale brown, disc darker, striate to disc.
Odor mild, taste unpleasant, slight of onion. Lamellae
adnate, whitish, broad, subdistant. Stipe brown, darker
below, with white pruinose coat, tapering down.

Spores white in deposits.

35181

MARASMIUS

On lawn, under pine, Heßler's, July 13, 1969.

Pileus "sage brown," slightly hygrophanous and darker when wet, innately fibrillose-appressed, margin striate. Context white; odor and taste mild.

Lamellae adnate to a false collar, "pinkish buff," darker in age, close, medium broad, at times anastomosed, lamellulae common.

Stipe pallid to brown, fibrillose, solid, equal.

Spore deposit: "pale ochraceous buff."

A mixed collection, consisting of 2 Collybia spp.

Annotated: D.E. Desjardins, July 1991

35199

MARASMIUS

On log, Indian Creek, August 7, 1969.

Pileus dark-red or reddish-brown, disc depressed, matted-fibrillose, sulcate to disc. Context thin, concolorous, odor slight of garlic, taste strong of garlic. Lamellae adnate to a collarium, at first very pale brown, then darker brown, venose, broad, subdistant, lamellulae numerous. Stipe dark reddish above, blackish below, whitish pruinose, tapering downward, tough, tubular.

= Macromphale foetidum

Annotated: D. S. Desjardis, July 1991

35663

MARASMIUS

On oak log, Highlands, North Carolina, August 18, 1970

Pileus dark red brown, viscid (?), striate to disc, disc more or less umbilicate, thin; odor and taste of garlic. Gills rounded - adnexed, subdistant, thick, pallid, lamellulae numerous. Stipe blackish, hirsute, tough, solid.

= Collybia dichroma (B.+C.) Villhain

Annotated: D. E. DeJardin, July 1991

35685

MARASMIUS

In deciduous woods, Norton Road, Highlands, North Carolina, August 19,
1970

Pileus "cinnamon buff," hygrophanous, dark watery brown when wet, sub-velvety (under lens), even. Flesh white, pliant; odor mild, taste unpleasant (bitterish).

Lamellae adnexed, pallid, soon dingy ocher and brownish flecked, edges brownish-marginate, finally "snuff brown," close, rather narrow, lamellulae numerous.

Stipe apex pallid or whitish, elsewhere "Vandyke brown," glabrous, shining, equal, hollow.

Spores: white.

35690

MARASMIUS

On oak tree (living) trunk, Highlands, North Carolina, August 18, 1970

Pileus hygrophanous, "bister" when wet, "pinkish buff" when dry, striate nearly to disc. Flesh whitish; odor and taste mild or slight.

Lamellae adnexed or nearly free, white, thin, lamellulae alternating with long, medium close, rather narrow.

Stipe white above, dark brown below, white pruinose over all, hollow, often more or less compressed.

Spore deposit failed.

= Collybia sp.

Annotated: D. E. Desjardins, July 1991

35827

MARASMIUS

On debris, mixed deciduous hemlock woods, Roaring Fork Road, Gatlinburg,
Tennessee, June 3, 1971.

Pileus 6-9 mm broad, convex, dull buff (dry), watery brownish (wet),
disc darker, not viscid, pruinose, margin even (dry), short-striate
(wet). Context concolorous with pileus; odor and taste distinctly
fungoid.

Lamellae adnexed, pallid-buff, subdistant, broad, lamellulae
numerous (of 3 ranks).

Stipe 15-30 mm long, 0.7-1.5 mm thick, dark brown, glabrous, base
strigose, equal, hollow.

= Collybia semihirtipes (Pk.) Hallenq

Annotated: D. E. Desjardins, July 1991

35860

MARASMIUS

On grass-blades Hesler's lawn, Knox County, August 1, 1971

Pileus 3-7 mm broad, convex-hemispheric, expanding, "zinc orange," fading on drying to "cinnamon" or a dull rusty brown, glabrous, margin often deep-sulcate. Context very thin, white; odor and taste none.

Lamellae adnate, white, edges sometimes reddish-brown, very distant, broad, 5-8 reaching stipe, few short, intervenose.

Stipe 9-18 mm long, hair-like, apex white, elsewhere dark-reddish-brown, glabrous.

= Marasmius pseudobambusinus Desjardes

Annotated: D. E. Desjardes

35861

MARASMIUS

On soil, lawn, Hesler's, Knox County, August 1, 1970

Pileus 4-10 mm broad, pallid-grayish (not matched), convex then depressed, glabrous, subsulcate or striate. Context thin, pallid; odor and taste mild or none.

Lamellae adnexed, "pinkish cinnamon," distant, ventricose-broad, lamellulae alternating.

Stipe 15-25 mm long, 0.3-0.6 mm thick, apex white and white-pruinose, elsewhere reddish-brown and glabrous, solid.

Spores white in deposit.

39 750

MARASMIUS

On soil, in grass, roadside, Timberlake Rd., Knox Co.,

September 6, 1974

Pileus 1-2 cm broad, plano-convex then plane, disc depressed-umbilicate, near "clay color" but paler, striate, glabrous, disc pruinose. Context thin, pliant, pallid; odor mild, taste mild to slight.

Lamellae adnexed, whitish, narrow, nearly subdistant,
lamellulae numerous, intervenose.

Stipe 3-5 cm long, 1.5-2 mm thick, brownish beneath a dense covering of whitish tomentum, equal or nearly so, hollow.

Spores in deposit: "ivory yellow."

= Collybia biformis (Pk.) Sing.

Amstated: D. E. Dwyer, July 1991